



Arizona Electric Power C



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ORIGINAL

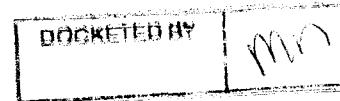
March 30, 2012

Arizona Corporation Commission

DOCKETED

MAR 30 2012

Docket Control  
Arizona Corporation Commission  
1200 West Washington  
Phoenix, AZ 85007



**RE: Arizona Electric Power Cooperative, Inc. ("AEPCO") Demand and Supply Side Data Filing and Resource Planning Filing; Docket No. E-00000A-11-0113**

Dear Sir/Madam:

Pursuant to R14-2-703.A-F and H, enclosed are the original and 13 copies of the public versions of AEPCO's (1) Demand and Supply Side Data Filing and (2) Resource Planning Filing. Your assistance in relation to this matter is appreciated.

Sincerely,

Jacquelyn T. Cook  
Director of Planning & Business Development

Enc.

c/Corp. Records  
M. Schilling

RECEIVED  
2012 MAR 30 P 2:43  
AZ CORP COMMISSION  
DOCKET CONTROL



**Arizona Electric Power Cooperative, Inc.**

**Demand- and Supply-Side Data Filing  
R14-2-703.A and B**

**Docket No. E-00000A-11-0113**

**March 30, 2012**

**Public Version**

## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**A.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of demand-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. Hourly demand for the previous calendar year, disaggregated by:

a. Sales to end users;

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Arizona Electric Power Cooperative, Inc. (AEPCO) sells at wholesale and to other utilities (distribution cooperatives) and does not sell directly to end users.

## 2011 Integrated Resource Planning Actual Data Filing

### R14-2-703.    Load-serving Entity Reporting Requirements

**A.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of demand-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. Hourly demand for the previous calendar year, disaggregated by:

b. Sales for resale;

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Arizona Electric Power Cooperative Inc.'s 2011 hourly total firm load in standard EEI format is shown below.

AEPCO total firm load = Three Class A Full Requirements distribution cooperative (Anza Electric Cooperative, Inc., Duncan Valley Electric Cooperative, Inc. and Graham County Electric Cooperative Inc.) loads + Three Class A Partial Requirements distribution cooperative (Mohave Electric Cooperative, Inc., Sulphur Springs Valley Electric Cooperative Inc. and Trico Electric Cooperative, Inc.) Scheduled Energy + ED-2 Firm sale.

01011112280148520	280	287	284	285	289	304	312	321	330	329	329	319
0101112228	301	286	278	266	266	299	328	337	346	339	320	311
01021112280148530	291	285	284	288	293	325	332	342	346	343	320	302
0102112228	288	281	269	261	269	304	320	348	350	339	315	289
01031112280148540	267	263	258	263	273	296	324	338	332	329	315	291
0103112228	285	269	267	251	259	309	336	339	340	324	303	282
01041112280148550	272	255	256	257	270	290	319	325	330	308	308	294
0104112228	270	251	250	249	255	291	334	329	327	307	283	254
01051112280148560	248	246	247	254	269	310	341	348	332	311	294	288
0105112228	277	262	254	252	256	285	311	311	313	306	274	262
01061112280148570	249	247	245	247	259	280	322	332	313	315	299	283
0106112228	269	261	250	248	256	305	342	343	334	315	292	263
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0107112228	250	236	227	226	229	283	312	315	303	292	275	253
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0108112228	261	247	242	240	243	269	302	299	307	296	274	235
01091112280148530	202	164	165	168	170	183	193	203	202	193	185	173
0109112228	177	169	169	169	177	184	208	209	207	193	179	168
01101112280148540	161	165	165	167	163	187	207	274	298	283	260	249
0110112228	246	238	237	246	248	268	292	299	304	290	272	257
01111112280148550	249	244	245	247	260	295	315	316	307	292	286	273
0111112228	270	254	252	250	250	272	298	311	315	329	268	242
01121112280148560	236	232	229	234	246	280	350	355	344	287	283	268
0112112228	253	245	240	236	235	278	282	327	292	277	252	240
01131112280148570	219	218	220	226	239	267	331	336	328	288	263	255

## 2011 Integrated Resource Planning Actual Data Filing

0113112228	241	229	228	225	236	256	318	327	324	290	238	219
01141112280148510	210	199	198	198	213	253	319	333	316	287	262	244
0114112228	238	230	223	223	228	249	323	323	296	253	237	202
01151112280148520	197	191	202	197	195	207	227	272	261	258	245	236
0115112228	228	226	224	228	226	243	308	309	296	285	269	203
01161112280148530	195	190	187	188	200	214	234	247	253	246	246	239
0116112228	232	214	213	210	215	235	311	314	308	293	210	194
01171112280148540	193	189	186	189	190	205	220	246	250	255	239	231
0117112228	236	228	229	228	231	245	332	329	324	248	226	202
01181112280148550	191	190	190	191	200	217	251	296	277	260	224	219
0118112228	234	227	232	235	229	245	321	325	317	226	219	207
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01201112280148570	194	186	186	183	191	213	248	271	259	251	244	238
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01211112280148510	196	192	195	200	204	227	266	285	274	258	250	238
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01241112280148540	196	192	191	195	209	239	274	303	285	285	273	256
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0125112228	253	244	236	230	231	251	291	293	289	274	248	218
01261112280148560	205	204	204	209	222	250	290	312	295	274	260	243
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02011112280148550	196	192	193	198	210	229	264	298	282	278	273	262
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0206112228	236	231	226	224	222	227	273	279	271	257	247	226

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0209112228	255	244	235	236	233	244	277	290	288	282	262	207
02101112280148570	205	202	203	203	212	233	275	322	303	284	249	243
0210112228	237	229	226	222	223	247	286	294	292	284	265	206
02111112280148510	182	179	179	182	187	204	221	241	230	217	251	234
0211112228	223	213	208	205	185	228	256	262	268	261	241	198
02121112280148520	199	207	204	204	217	228	246	295	289	274	261	245
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02131112280148530	191	200	200	198	211	222	243	254	244	233	230	221
0213112228	217	214	210	208	209	212	233	242	245	231	215	205
02141112280148540	186	185	185	187	190	203	219	264	252	255	230	227
0214112228	223	218	200	221	217	224	263	271	268	253	228	192
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0226112228	242	234	234	235	232	247	269	277	268	251	235	195
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0302112228	236	227	225	229	222	229	246	298	300	274	221	201
03031112280148510	186	184	181	181	186	202	228	234	231	234	238	222

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03061112280148540	199	195	194	196	198	202	216	224	223	221	228	219
0306112228	212	209	211	210	204	209	221	236	238	228	207	180
03071112280148550	189	186	182	181	186	196	213	223	222	224	239	238
0307112228	236	234	233	229	220	226	255	268	264	248	227	202
03081112280148560	193	188	189	189	190	198	219	237	238	235	237	234
0308112228	228	224	222	219	222	227	247	265	247	239	222	197
03091112280148570	193	190	188	196	197	213	238	244	243	233	229	220
0309112228	222	234	224	218	220	227	243	297	276	235	217	200
03101112280148510	185	179	179	181	187	206	233	238	232	226	223	220
0310112228	223	220	220	225	241	247	260	271	253	239	216	194
03111112280148520	187	183	181	181	184	200	224	234	228	226	232	229
0311112228	227	230	196	194	185	186	196	208	210	199	192	160
03121112280148530	151	139	137	136	138	141	150	158	161	165	174	170
0312112228	172	170	167	166	156	163	168	180	181	173	165	145
03131112280148540	133	134	133	136	135	142	148	153	157	151	166	152
0313112228	155	158	168	169	161	168	182	185	189	181	167	140
03141112280148550	135	128	125	128	121	134	159	168	167	167	180	175
0314112228	175	177	179	176	179	188	195	195	197	189	172	145
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03161112280148570	140	138	133	129	133	139	157	158	155	157	175	177
0316112228	180	182	182	182	178	185	183	189	197	189	159	143
03171112280148510	132	127	126	127	130	140	155	159	158	159	176	178
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03191112280148530	132	126	125	126	124	134	140	149	155	151	170	175
0319112228	175	175	181	182	167	173	180	185	181	177	152	138
03201112280148540	131	130	125	123	124	128	142	145	152	160	164	163
0320112228	165	166	166	164	156	160	167	183	180	170	149	126
03211112280148550	117	117	117	117	118	133	155	166	164	163	184	180
0321112228	178	176	72	73	73	82	87	91	88	82	54	44
03221112280148560	51	73	116	83	52	56	95	96	95	82	81	79
0322112228	77	76	75	74	72	77	82	94	91	83	59	54
03231112280148570	63	63	112	112	113	121	151	151	147	176	176	169
0323112228	168	169	164	173	163	167	174	192	192	183	156	137
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0324112228	161	161	160	159	148	152	159	166	173	172	159	145
03251112280148520	132	129	130	132	135	149	183	185	183	182	181	178
0325112228	177	176	175	174	176	181	185	193	189	181	152	136
03261112280148530	137	139	138	137	124	126	149	154	167	172	182	179
0326112228	178	178	176	168	163	167	172	182	184	175	149	138
03271112280148540	125	122	121	124	128	134	157	162	162	167	174	175
0327112228	176	170	170	166	160	167	170	182	182	181	157	138

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03281112280148550	132	129	127	133	134	145	162	162	163	163	168	137
0328112228	138	138	137	137	138	141	165	175	174	170	154	145
03291112280148560	145	117	118	118	128	157	173	182	178	176	179	179
0329112228	180	182	183	185	179	184	194	203	199	190	171	143
03301112280148570	136	134	131	132	127	147	170	174	180	175	181	180
0330112228	181	182	184	185	183	187	191	197	193	189	160	138
03311112280148510	119	118	117	117	127	141	168	175	176	180	183	185
0331112228	188	190	188	191	193	197	198	202	197	192	161	141
04011112280148520	147	138	134	132	133	149	166	171	179	182	191	205
0401112228	211	216	220	220	227	227	222	221	218	213	190	164
04021112280148530	154	146	136	131	132	135	146	156	167	176	199	206
0402112228	213	220	232	231	231	226	222	223	222	213	190	171
04031112280148540	151	145	140	138	137	145	140	147	155	171	186	198
0403112228	204	208	210	211	211	211	207	211	207	196	169	154
04041112280148550	127	125	124	125	125	142	164	167	162	165	167	176
0404112228	186	185	186	184	170	173	176	198	200	192	162	144
04051112280148560	133	129	127	128	132	145	157	165	168	173	175	181
0405112228	187	193	197	201	212	214	213	218	213	203	181	158
04061112280148570	139	136	130	130	127	145	159	164	171	161	189	196
0406112228	198	199	198	191	190	189	192	200	199	189	169	146
04071112280148510	128	129	130	127	128	145	167	174	173	171	174	179
0407112228	177	171	178	180	181	180	183	189	190	180	165	142
04081112280148520	139	128	129	128	130	147	167	174	172	175	179	180
0408112228	178	173	173	174	174	177	178	187	184	183	167	149
04091112280148530	137	132	128	132	128	139	145	159	163	173	179	182
0409112228	176	172	174	175	173	177	183	191	189	185	169	149
04101112280148540	151	148	147	149	150	155	163	169	175	175	175	166
0410112228	167	156	156	150	153	164	172	188	182	176	163	152
04111112280148550	129	128	128	130	134	157	179	185	180	179	171	169
0411112228	175	170	165	159	166	171	178	192	190	175	158	137
04121112280148560	129	126	129	133	138	157	169	172	168	164	170	173
0412112228	185	182	190	190	195	185	189	199	196	185	169	149
04131112280148570	137	133	132	130	131	151	168	173	162	166	169	173
0413112228	176	183	183	184	186	185	182	189	186	173	161	144
04141112280148510	129	129	122	123	133	151	158	158	160	168	171	176
0414112228	174	170	166	162	167	174	173	184	184	176	159	142
04151112280148520	131	126	128	127	133	150	160	169	163	163	166	168
0415112228	172	186	183	182	182	183	192	195	193	188	164	145
04161112280148530	132	128	127	126	124	129	132	141	155	159	172	179
0416112228	186	196	208	214	215	216	209	212	195	189	177	152
04171112280148540	145	140	138	137	134	139	132	140	159	177	192	204
0417112228	213	221	225	224	224	223	218	223	221	210	183	160
04181112280148550	143	134	127	127	129	141	141	155	159	187	191	203
0418112228	212	216	218	220	226	215	208	224	221	200	182	159
04191112280148560	152	142	136	139	140	150	155	165	184	187	192	200
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04201112280148570	152	146	141	142	147	145	168	165	179	181	187	196
0420112228	204	213	218	221	216	212	209	211	208	202	185	166
04211112280148510	154	147	144	145	149	161	168	176	184	187	195	205



**2011 Integrated Resource Planning Actual Data Filing**

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04221112280148520	152	146	145	140	142	157	178	185	189	194	198	207
0422112228	210	216	209	222	223	223	219	219	215	206	185	166
04231112280148530	153	148	145	141	144	152	159	163	170	179	183	194
0423112228	197	209	212	210	206	207	202	209	208	197	185	168
04241112280148540	151	147	143	141	143	147	144	159	173	184	193	201
0424112228	207	211	214	214	206	205	202	205	207	192	166	155
04251112280148550	131	120	123	123	129	139	152	165	172	179	184	195
0425112228	199	203	210	210	213	213	208	215	211	197	181	160
04261112280148560	150	138	129	130	143	151	158	168	176	179	187	197
0426112228	198	203	205	207	205	205	200	204	210	186	175	155
04271112280148570	146	136	131	129	133	146	150	168	174	185	188	194
0427112228	195	198	202	205	209	211	211	214	212	203	180	149
04281112280148510	133	128	125	124	128	148	156	163	166	174	184	193
0428112228	200	210	219	225	229	231	221	229	223	212	185	163
04291112280148520	153	146	130	129	136	159	172	183	190	195	200	209
0429112228	213	218	222	219	219	219	221	220	217	200	186	171
04301112280148530	150	140	134	134	132	135	145	156	165	182	175	186
0430112228	186	190	184	185	186	185	183	189	195	176	162	141
05011112280148540	144	130	135	132	133	142	142	158	160	175	172	172
0501112228	177	174	174	177	177	183	187	198	198	186	160	137
05021112280148550	134	131	121	119	125	135	162	175	177	177	177	178
0502112228	184	182	188	191	190	192	196	202	203	192	173	151
05031112280148560	130	144	144	141	132	138	148	152	153	156	159	186
0503112228	160	163	194	199	204	209	212	214	210	199	183	166
05041112280148570	159	152	149	146	144	154	166	172	174	181	195	202
0504112228	212	219	226	256	233	233	233	231	226	213	187	171
05051112280148510	161	160	159	158	156	160	169	173	175	188	197	206
0505112228	216	223	229	234	237	264	235	232	225	212	184	167
05061112280148520	174	171	165	162	166	173	202	207	185	210	220	231
0506112228	243	250	234	239	242	241	233	227	220	203	187	201
05071112280148530	199	196	188	185	185	185	202	207	209	217	219	230
0507112228	241	243	240	241	243	258	265	260	252	279	249	229
05081112280148540	224	213	206	199	202	206	209	221	236	244	266	275
0508112228	283	288	293	299	302	301	293	286	286	256	235	218
05091112280148550	206	198	187	186	186	190	233	248	261	272	286	295
0509112228	289	292	294	301	303	299	299	299	289	282	185	178
05101112280148560	151	145	142	145	146	153	171	176	153	154	159	161
0510112228	173	166	172	172	172	173	176	183	194	175	169	160
05111112280148570	161	151	147	145	146	153	171	176	177	178	175	177
0511112228	181	177	189	192	195	198	200	205	204	195	180	163
05121112280148510	158	148	144	143	145	152	165	174	178	182	189	193
0512112228	199	204	210	212	220	220	219	218	215	204	186	171
05131112280148520	155	147	142	143	136	154	168	213	221	227	230	253
0513112228	279	286	295	319	238	298	360	346	314	290	237	218
05141112280148530	214	203	198	193	191	208	221	235	244	261	272	292
0514112228	304	312	313	308	309	307	302	290	288	273	242	225
05151112280148540	155	149	205	200	196	191	193	209	228	244	257	274
0515112228	289	305	305	313	320	322	303	299	295	265	242	223

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05161112280148550	211	199	196	195	186	190	208	195	207	217	230	240
0516112228	252	247	255	255	268	272	295	260	274	242	229	212
05171112280148560	199	195	192	193	196	203	239	227	237	262	264	274
0517112228	281	273	276	277	303	303	302	312	319	289	230	215
05181112280148570	215	209	204	203	205	217	240	250	264	269	275	282
0518112228	283	284	287	282	286	283	280	293	288	266	229	215
05191112280148510	201	197	193	195	201	208	239	218	227	260	259	259
0519112228	260	262	266	266	276	257	256	288	293	276	227	215
05201112280148520	206	201	199	198	201	210	236	234	243	245	246	275
0520112228	285	302	306	309	318	317	292	294	294	272	238	222
05211112280148530	217	209	201	196	197	193	204	220	231	255	261	268
0521112228	283	281	286	292	298	314	322	307	290	278	245	227
05221112280148540	213	204	200	196	192	191	195	205	216	232	250	269
0522112228	277	290	298	310	314	309	310	303	282	264	241	216
05231112280148550	210	203	198	194	195	197	239	255	269	267	276	283
0523112228	290	297	314	347	364	331	329	322	317	292	251	231
05241112280148560	218	211	207	204	203	209	241	224	248	256	258	281
0524112228	289	304	308	312	282	284	241	238	267	283	253	231
05251112280148570	220	211	204	195	197	198	211	227	240	256	267	282
0525112228	301	345	332	360	361	363	352	349	346	331	307	289
05261112280148510	222	209	203	204	205	210	216	232	298	311	311	335
0526112228	357	365	368	369	372	372	362	351	352	327	285	255
05271112280148520	249	214	208	202	202	207	233	250	270	286	298	316
0527112228	341	338	361	349	365	363	351	340	360	319	290	256
05281112280148530	227	216	220	217	214	214	209	216	255	290	311	333
0528112228	350	349	355	361	359	359	359	353	361	321	295	250
05291112280148540	230	220	218	213	210	208	211	227	235	272	295	296
0529112228	314	317	317	321	318	317	303	287	287	256	232	219
05301112280148550	221	217	211	198	200	203	214	223	229	241	245	263
0530112228	270	279	290	293	289	304	298	288	286	261	250	225
05311112280148560	206	198	190	192	195	202	216	235	244	258	293	312
0531112228	334	328	350	357	366	367	352	349	283	264	236	220
06011112280148570	212	203	199	199	198	200	217	232	245	300	294	356
0601112228	330	338	341	341	339	350	336	315	331	334	253	223
06021112280148510	221	209	199	197	186	188	201	213	221	265	271	302
0602112228	317	328	339	340	345	343	336	326	322	307	269	241
06031112280148520	218	209	203	201	195	195	212	217	252	267	288	303
0603112228	348	363	370	384	388	382	338	325	321	292	249	215
06041112280148530	209	204	200	199	195	196	195	206	234	265	298	319
0604112228	330	345	355	362	364	366	355	343	333	311	264	227
06051112280148540	241	231	220	216	213	201	205	225	237	295	331	352
0605112228	342	364	391	398	401	400	391	371	399	362	289	268
06061112280148550	237	222	215	203	210	210	218	248	290	307	317	334
0606112228	363	380	393	396	395	383	359	340	331	321	280	246
06071112280148560	224	209	196	193	202	207	221	239	259	293	301	314
0607112228	325	336	354	364	367	366	355	334	331	314	270	244
06081112280148570	229	220	213	215	216	217	226	241	263	282	296	312
0608112228	324	371	361	373	372	371	344	334	326	310	274	229
06091112280148510	215	201	193	189	189	191	220	238	261	282	296	315

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0609112228	326	339	373	381	379	398	392	361	358	334	267	236
06101112280148520	226	215	207	204	203	202	225	245	272	308	328	353
0610112228	374	382	394	406	407	406	396	357	342	324	270	241
06111112280148530	231	220	207	203	204	203	204	230	259	287	344	358
0611112228	354	352	366	371	369	372	362	337	330	312	271	236
06121112280148540	226	215	207	201	199	198	197	214	250	284	310	334
0612112228	323	333	349	359	362	351	333	309	340	311	276	242
06131112280148550	217	208	201	200	200	200	207	237	246	274	282	313
0613112228	334	348	378	383	386	387	379	336	348	304	276	246
06141112280148560	238	219	208	206	209	212	231	258	258	291	312	331
0614112228	355	377	380	387	393	394	389	379	374	361	318	271
06151112280148570	252	242	235	227	227	225	243	267	298	342	356	398
0615112228	411	421	425	428	432	412	427	407	404	395	328	289
06161112280148510	276	260	248	242	240	240	243	275	306	374	389	398
0616112228	408	415	423	427	429	428	424	403	383	360	313	270
06171112280148520	264	251	235	232	230	236	245	274	299	315	333	362
0617112228	370	387	398	402	405	404	391	357	359	343	316	277
06181112280148530	255	238	227	221	218	214	213	226	261	289	331	341
0618112228	375	384	402	408	407	403	392	376	366	312	303	265
06191112280148540	248	229	218	212	208	207	215	229	270	315	347	372
0619112228	348	359	367	362	369	354	358	333	353	324	285	251
06201112280148550	233	222	213	206	211	212	225	248	279	323	354	388
0620112228	392	403	411	415	419	420	414	381	363	334	284	249
06211112280148560	239	221	211	209	213	214	212	237	257	282	320	360
0621112228	379	392	405	412	417	418	413	377	386	361	313	267
06221112280148570	255	240	231	223	223	226	233	254	294	331	366	386
0622112228	399	404	413	420	424	423	418	404	378	367	349	295
06231112280148510	265	260	246	241	237	244	229	265	310	349	372	393
0623112228	382	387	380	373	398	393	384	376	402	320	305	279
06241112280148520	257	239	218	191	187	189	184	207	272	323	340	367
0624112228	379	411	414	413	421	420	414	399	398	387	336	292
06251112280148530	298	262	241	232	228	230	233	234	281	334	367	397
0625112228	411	420	429	425	427	424	420	393	397	383	349	304
06261112280148540	284	247	225	216	212	211	215	251	301	350	386	415
0626112228	400	407	414	307	386	424	415	390	415	382	354	315
06271112280148550	263	241	230	226	228	228	234	264	298	347	388	409
0627112228	393	404	411	418	420	418	408	395	416	391	365	322
06281112280148560	296	272	250	240	234	235	237	276	324	363	391	410
0628112228	424	429	431	437	437	435	429	423	413	400	367	326
06291112280148570	315	297	279	264	259	209	203	216	219	288	270	281
0629112228	294	339	348	351	346	343	382	377	391	371	363	326
06301112280148510	278	261	245	236	231	232	242	272	302	340	369	412
0630112228	406	415	427	431	433	424	406	399	393	354	327	281
07011112280148520	290	283	269	259	256	256	248	280	311	347	389	415
0701112228	401	410	413	418	422	419	405	383	418	408	380	316
07021112280148530	302	295	289	274	270	267	242	285	308	389	421	436
0702112228	410	425	425	428	430	427	412	395	430	416	383	342
07031112280148540	308	293	277	256	254	249	262	300	341	373	402	415
0703112228	432	413	443	439	432	424	415	399	397	381	359	319

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07041112280148550	279	268	254	246	246	248	251	285	350	374	393	410
0704112228	379	387	435	434	430	394	332	309	364	337	297	254
07051112280148560	241	233	231	228	227	228	279	322	337	392	409	429
0705112228	424	448	455	452	446	429	409	362	399	389	327	286
07061112280148570	269	255	256	245	251	248	272	309	326	368	389	419
0706112228	395	437	445	451	455	445	439	424	404	372	361	293
07071112280148510	259	248	250	244	241	244	294	326	339	378	415	434
0707112228	443	450	457	464	467	465	430	430	419	408	354	287
07081112280148520	259	272	273	262	273	275	298	334	349	275	318	389
0708112228	406	412	418	454	457	456	426	430	403	386	343	307
07091112280148530	285	275	278	256	250	245	267	303	314	385	414	428
0709112228	444	451	455	448	435	423	406	391	376	317	277	257
07101112280148540	274	262	256	253	248	247	238	257	289	324	351	385
0710112228	384	394	395	393	367	344	338	315	323	294	316	274
07111112280148550	254	243	241	242	242	239	229	272	283	293	325	308
0711112228	340	336	329	344	361	371	353	311	312	287	319	280
07121112280148560	249	240	219	217	227	236	235	264	286	308	336	368
0712112228	365	388	411	415	419	407	412	398	370	352	312	276
07131112280148570	251	241	239	237	238	233	259	303	322	347	361	380
0713112228	369	380	392	408	412	414	407	385	358	354	296	255
07141112280148510	237	235	231	220	223	218	247	271	286	310	348	369
0714112228	355	371	381	392	412	413	405	358	371	346	281	240
07151112280148520	232	222	217	208	208	210	232	263	273	299	333	376
0715112228	348	380	404	412	411	411	404	372	381	356	305	271
07161112280148530	249	236	226	215	214	216	232	251	270	298	336	392
0716112228	399	412	425	434	437	429	418	395	404	375	326	283
07171112280148540	265	250	228	221	227	217	220	248	299	359	394	417
0717112228	426	430	434	431	422	409	400	383	385	350	318	283
07181112280148550	250	243	238	230	234	241	276	303	313	358	423	436
0718112228	444	446	445	432	421	401	392	372	386	373	316	277
07191112280148560	265	260	251	255	255	259	263	296	311	345	383	395
0719112228	407	420	428	434	431	424	417	400	391	384	357	316
07201112280148570	293	281	281	255	250	257	279	304	319	362	385	393
0720112228	400	409	420	426	422	413	377	353	364	338	308	262
07211112280148510	242	240	243	239	235	235	246	275	288	312	266	301
0721112228	392	402	415	422	427	428	413	373	378	351	315	280
07221112280148520	268	256	247	235	240	239	249	280	294	326	371	386
0722112228	394	407	415	423	426	422	408	375	373	346	326	296
07231112280148530	291	288	275	260	256	253	251	282	302	343	380	392
0723112228	403	417	421	418	405	395	364	331	351	347	315	295
07241112280148540	278	276	260	249	255	251	261	289	308	350	371	383
0724112228	392	402	410	414	414	405	395	386	380	362	311	273
07251112280148550	235	233	235	229	226	235	257	282	295	333	364	380
0725112228	390	397	393	391	393	368	362	357	366	338	302	256
07261112280148560	238	240	233	227	230	232	269	294	303	335	386	415
0726112228	424	430	436	440	445	448	443	402	408	386	332	265
07271112280148570	239	234	232	225	225	233	236	261	275	344	378	397
0727112228	408	416	423	429	432	432	423	407	403	380	354	310
07281112280148510	261	261	254	244	242	247	255	283	298	349	382	401

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0728112228	411	420	426	429	431	430	414	404	398	389	357	321
07291112280148520	280	267	260	254	242	243	311	342	360	382	415	425
0729112228	400	400	410	416	420	424	418	408	425	415	365	333
07301112280148530	292	261	255	242	243	242	266	306	345	374	413	432
0730112228	421	427	423	424	421	411	394	388	402	376	335	302
07311112280148540	309	287	293	258	258	254	236	270	287	369	396	409
0731112228	419	428	429	412	387	388	367	347	370	341	318	274
08011112280148550	245	233	235	231	234	238	255	282	300	359	383	394
0801112228	407	417	425	431	435	437	430	409	407	381	367	322
08021112280148560	268	267	257	250	252	256	288	288	309	375	403	417
0802112228	431	434	439	445	448	448	441	432	423	408	354	324
08031112280148570	301	267	244	238	237	244	260	292	315	351	374	382
0803112228	391	401	413	423	426	426	419	408	400	384	361	330
08041112280148510	298	285	265	255	259	265	301	325	354	392	418	431
0804112228	420	429	435	435	431	427	417	407	425	413	370	327
08051112280148520	292	286	274	266	263	256	272	278	346	375	397	410
0805112228	398	405	409	411	409	405	394	350	397	355	340	303
08061112280148530	272	262	247	237	234	237	227	253	287	329	361	387
0806112228	348	376	392	389	388	386	373	329	375	353	329	287
08071112280148540	291	279	261	248	251	249	240	269	303	338	398	405
0807112228	418	426	425	400	402	396	390	386	383	374	360	335
08081112280148550	276	265	254	242	245	244	261	283	332	369	383	394
0808112228	407	416	423	427	434	435	427	410	406	390	365	328
08091112280148560	280	273	259	252	254	261	275	319	339	359	390	399
0809112228	408	417	422	426	424	418	394	387	394	381	356	320
08101112280148570	272	255	242	241	245	257	288	316	333	367	388	397
0810112228	402	403	399	393	391	389	377	382	379	362	337	293
08111112280148510	269	230	218	212	212	212	226	303	325	355	379	389
0811112228	399	406	410	408	397	393	387	381	376	338	326	281
08121112280148520	267	260	249	248	248	251	263	284	295	327	360	368
0812112228	378	389	397	402	401	394	386	375	373	356	331	292
08131112280148530	265	260	253	245	246	227	222	237	298	329	349	378
0813112228	359	415	389	394	414	401	380	380	358	336	323	281
08141112280148540	275	256	251	244	238	237	223	240	279	323	375	394
0814112228	398	417	424	429	431	427	421	410	402	388	361	327
08151112280148550	276	263	253	244	249	251	265	291	323	360	381	388
0815112228	401	411	414	407	413	406	393	377	389	368	321	288
08161112280148560	261	257	245	241	240	243	247	278	302	349	381	392
0816112228	379	388	390	391	381	374	368	364	383	361	334	302
08171112280148570	268	259	236	228	234	239	268	294	317	358	387	400
0817112228	415	427	436	435	430	424	418	410	403	388	357	311
08181112280148510	295	277	264	254	255	270	280	304	325	363	401	415
0818112228	420	435	423	405	389	375	369	354	352	323	316	275
08191112280148520	242	244	233	246	242	241	250	288	309	342	342	357
0819112228	360	375	379	393	394	390	364	363	369	345	319	285
08201112280148530	267	258	238	231	231	236	221	252	273	314	362	387
0820112228	388	406	399	404	399	389	380	361	371	347	317	278
08211112280148540	268	253	242	236	240	255	214	242	283	326	364	387
0821112228	386	410	420	425	425	420	409	401	393	363	350	327

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08221112280148550	286	276	258	246	244	262	241	264	297	343	381	407
0822112228	413	431	436	433	428	425	417	409	399	384	357	319
08231112280148560	299	284	273	262	260	264	268	300	333	361	390	404
0823112228	396	403	409	417	421	417	403	397	411	393	370	337
08241112280148570	295	295	274	268	267	272	299	335	357	396	420	435
0824112228	426	435	438	444	445	439	426	416	438	422	380	346
08251112280148510	325	315	295	286	286	293	322	344	361	385	407	421
0825112228	441	452	461	462	462	454	449	441	429	415	365	336
08261112280148520	306	294	281	277	279	291	325	349	375	413	432	447
0826112228	436	441	440	443	438	431	424	413	425	412	373	340
08271112280148530	304	295	279	270	263	279	291	316	347	404	428	444
0827112228	436	439	442	437	426	414	408	399	417	395	363	317
08281112280148540	331	309	294	283	283	278	277	322	354	388	419	434
0828112228	415	423	431	437	439	435	459	446	433	416	375	350
08291112280148550	320	315	295	286	288	298	304	336	359	401	424	439
0829112228	429	437	442	440	443	441	432	427	438	418	392	354
08301112280148560	332	327	299	296	295	310	285	313	318	371	396	411
0830112228	428	439	443	448	450	446	435	431	417	400	395	361
08311112280148570	309	304	281	272	276	280	283	311	327	361	394	414
0831112228	431	442	450	450	439	426	414	407	389	366	337	309
09011112280148510	302	290	272	267	266	274	281	310	320	349	375	399
0901112228	414	420	427	434	434	429	404	400	408	385	354	322
09021112280148520	314	276	257	248	247	278	265	295	321	322	328	394
0902112228	367	386	397	408	409	394	370	357	394	367	349	318
09031112280148530	270	251	247	233	228	228	223	267	298	337	378	398
0903112228	365	371	387	405	404	391	374	369	390	366	339	301
09041112280148540	304	284	272	259	258	256	261	283	328	369	391	412
0904112228	447	455	457	460	455	443	438	432	424	381	361	346
09051112280148550	359	334	315	296	291	294	279	300	341	368	382	381
0905112228	354	367	366	344	343	333	329	328	331	345	326	294
09061112280148560	266	256	249	239	240	251	265	290	319	352	381	396
0906112228	383	395	394	391	391	383	361	350	382	371	340	303
09071112280148570	254	240	227	226	224	231	245	278	309	335	368	401
0907112228	414	424	433	439	440	436	424	402	402	360	319	266
09081112280148510	264	252	237	231	233	243	283	306	332	359	383	405
0908112228	432	442	449	454	456	452	430	413	400	370	308	284
09091112280148520	287	279	264	259	259	270	280	303	323	355	391	414
0909112228	398	399	395	387	360	340	316	297	308	287	274	252
09101112280148530	255	248	241	236	234	230	240	255	273	290	310	345
0910112228	329	357	369	368	339	306	286	274	286	272	261	242
09111112280148540	248	241	227	222	229	233	224	238	236	282	300	330
0911112228	344	349	363	355	352	352	338	313	303	290	289	266
09121112280148550	245	239	234	233	229	232	257	271	292	299	318	323
0912112228	291	298	306	320	321	310	298	283	307	279	259	242
09131112280148560	238	231	229	226	231	237	250	265	268	282	292	306
0913112228	296	307	323	333	324	322	299	281	306	279	244	224
09141112280148570	202	198	194	193	195	199	233	243	259	279	290	311
0914112228	280	300	303	302	300	298	284	268	280	268	226	210
09151112280148510	202	199	199	198	203	203	235	245	255	276	297	313

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0915112228	328	345	346	335	333	337	329	316	303	281	236	215
09161112280148520	215	215	216	213	214	211	235	248	258	281	298	325
0916112228	340	352	367	386	371	364	340	324	310	286	242	224
09171112280148530	213	211	207	203	202	206	221	229	242	291	311	315
0917112228	327	359	373	371	365	363	341	315	292	268	247	228
09181112280148540	221	208	205	200	199	205	196	205	221	246	266	291
0918112228	317	350	370	378	378	366	349	344	308	275	248	224
09191112280148550	213	210	202	202	200	204	220	238	258	278	305	328
0919112228	369	389	411	418	421	409	394	372	348	318	259	237
09201112280148560	221	219	213	214	213	217	240	253	270	297	323	350
0920112228	375	396	407	414	417	413	404	375	346	315	248	227
09211112280148570	221	218	212	213	213	218	242	260	277	299	322	352
0921112228	369	385	391	394	397	393	378	365	330	309	255	227
09221112280148510	220	216	212	210	210	217	245	260	270	297	327	347
0922112228	370	396	406	412	414	408	395	376	337	307	255	233
09231112280148520	226	219	208	206	209	215	244	255	274	298	322	353
0923112228	384	406	423	429	431	423	396	371	336	310	250	230
09241112280148530	227	221	216	209	211	211	232	240	253	276	310	338
0924112228	369	389	412	398	393	383	377	366	346	315	257	241
09251112280148540	240	228	219	216	213	212	202	218	253	287	313	344
0925112228	371	378	379	386	390	378	350	343	309	283	245	229
09261112280148550	213	208	203	201	204	208	240	252	269	285	309	335
0926112228	364	381	397	398	400	383	377	357	333	299	249	223
09271112280148560	219	211	205	203	205	214	239	250	257	298	321	335
0927112228	361	370	377	376	373	350	347	331	317	291	244	229
09281112280148570	217	208	205	201	200	206	234	251	258	270	293	325
0928112228	346	367	386	397	400	389	373	350	328	301	244	226
09291112280148510	221	216	206	204	206	215	244	258	258	275	314	335
0929112228	358	381	396	413	415	410	386	363	338	319	255	229
09301112280148520	224	224	219	215	214	217	246	259	278	296	313	342
0930112228	357	373	383	401	400	381	364	348	325	303	258	249
10011112280148500	238	228	217	215	217	219	242	264	281	309	335	344
1001112228	377	386	384	383	384	376	352	336	324	304	250	230
10021112280148500	217	215	208	202	205	199	205	220	240	276	303	336
1002112228	362	376	382	381	371	356	348	328	311	283	254	223
10031112280148500	218	209	209	204	209	216	253	265	289	312	330	336
1003112228	363	387	391	377	378	365	364	351	337	313	264	235
10041112280148500	213	208	204	202	207	218	229	246	253	269	281	300
1004112228	303	290	282	283	277	282	284	277	275	253	239	212
10051112280148500	207	199	196	197	200	205	222	228	241	240	244	238
1005112228	254	249	254	245	253	252	271	270	259	243	225	209
10061112280148500	204	192	191	192	193	202	216	224	226	238	225	228
1006112228	242	241	248	241	235	241	251	253	243	230	213	195
10071112280148500	196	193	204	193	197	210	234	240	237	242	245	244
1007112228	244	244	241	244	252	248	264	257	252	237	206	193
10081112280148500	182	188	175	173	177	183	212	226	220	232	231	233
1008112228	229	230	228	233	235	242	257	253	249	238	207	189
10091112280148500	189	183	181	179	184	188	190	202	208	211	216	213
1009112228	220	224	228	226	229	242	250	244	248	217	205	200

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10101112280148500	188	183	183	178	182	188	215	229	231	235	244	256
1010112228	264	263	264	271	280	268	289	270	276	254	213	200
10111112280148500	193	190	189	192	190	195	228	236	241	248	241	248
1011112228	259	261	267	280	288	293	300	294	280	261	224	206
10121112280148500	195	192	189	189	194	203	220	227	238	247	247	261
1012112228	279	290	300	319	325	322	325	312	298	271	227	211
10131112280148500	199	198	192	194	195	203	232	239	242	251	265	286
1013112228	311	326	339	353	360	356	357	337	314	283	239	217
10141112280148500	207	204	201	193	198	203	233	236	243	261	272	286
1014112228	306	329	343	357	362	353	345	328	298	274	234	215
10151112280148500	204	202	199	189	190	193	210	220	254	249	261	288
1015112228	318	339	351	360	358	348	350	324	301	278	231	224
10161112280148500	217	206	198	194	198	184	190	216	229	245	269	292
1016112228	319	343	363	365	369	356	345	332	313	288	257	233
10171112280148500	210	201	194	187	195	206	229	240	246	264	266	275
1017112228	293	302	312	318	319	315	315	301	289	275	250	229
10181112280148500	200	196	194	190	191	200	217	233	244	251	267	276
1018112228	287	295	308	314	317	314	313	300	289	264	233	208
10191112280148500	191	187	187	182	185	198	241	247	254	257	257	267
1019112228	286	297	303	314	319	316	314	300	289	269	231	190
10201112280148500	179	178	177	174	174	203	245	245	243	252	252	264
1020112228	282	296	301	310	308	300	307	290	278	258	220	203
10211112280148500	196	186	185	187	187	197	239	239	247	251	251	263
1021112228	288	298	309	314	314	308	305	295	284	270	230	212
10221112280148500	205	194	186	187	188	190	220	228	234	244	265	286
1022112228	306	321	328	334	334	329	323	305	288	265	209	202
10231112280148500	208	207	201	188	189	196	201	208	230	246	263	277
1023112228	305	323	348	354	363	349	364	355	327	310	250	220
10241112280148500	203	185	182	184	189	199	222	232	251	257	261	275
1024112228	291	306	299	308	305	300	296	289	284	269	211	198
10251112280148500	193	187	186	182	185	195	202	205	209	214	222	228
1025112228	236	244	251	251	251	250	255	245	235	223	211	201
10261112280148500	155	145	138	132	142	159	203	206	207	211	214	218
1026112228	222	226	219	220	222	223	234	229	216	211	173	150
10271112280148500	163	153	150	156	162	180	212	219	218	228	213	209
1027112228	209	214	218	218	223	229	254	245	232	225	215	197
10281112280148500	189	180	183	177	183	199	217	223	225	227	221	226
1028112228	229	230	234	236	239	241	252	243	234	227	215	197
10291112280148500	192	185	182	174	179	182	200	213	224	229	234	237
1029112228	235	240	248	252	256	260	272	263	250	234	214	201
10301112280148500	189	176	177	176	178	183	190	194	207	220	223	219
1030112228	226	240	250	258	271	271	288	280	265	240	212	197
10311112280148500	187	180	175	170	186	206	224	229	242	238	237	240
1031112228	241	255	271	272	280	280	291	278	256	235	215	204
11011112280148500	192	186	181	183	191	203	227	227	230	231	235	238
1101112228	248	252	258	265	268	259	261	246	257	242	223	204
11021112280148500	193	185	179	181	189	200	225	224	227	226	223	223
1102112228	226	227	235	238	238	241	253	245	248	230	208	192
11031112280148500	182	177	178	181	184	197	227	231	228	231	228	230



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1103112228	228	226	226	230	233	243	263	260	250	231	211	196
11041112280148500	183	179	176	178	182	195	223	234	230	228	222	223
1104112228	226	223	228	228	243	250	265	257	249	228	214	201
11051112280148500	191	185	179	179	179	189	201	213	221	228	234	236
1105112228	224	222	221	217	221	233	246	247	250	223	213	198
11061112280148500	195	186	184	183	187	196	206	221	231	236	237	232
1106112228	225	223	225	225	231	247	269	265	260	238	219	202
11071112280148500	189	184	184	181	192	210	242	259	296	279	271	269
1107112228	254	246	237	234	239	254	298	293	283	294	264	228
11081112280148500	214	213	206	211	227	257	301	310	291	285	268	252
1108112228	239	226	221	223	226	247	321	317	289	260	276	249
11091112280148500	237	203	202	203	215	237	282	301	289	263	249	233
1109112228	228	225	221	224	228	295	323	310	273	251	223	208
11101112280148500	199	196	195	197	205	233	270	264	249	236	230	226
1110112228	226	221	221	220	229	252	271	257	221	213	196	185
11111112280148500	173	167	165	166	176	189	202	207	210	207	205	200
1111112228	193	183	178	178	182	196	212	213	211	205	193	175
11121112280148500	174	171	167	167	172	177	196	204	209	208	206	202
1112112228	197	186	181	182	185	196	208	203	209	194	173	161
11131112280148500	161	148	148	145	147	158	173	187	200	201	208	191
1113112228	195	180	171	171	182	201	210	210	211	208	183	152
11141112280148500	147	152	151	150	166	189	218	221	226	209	209	210
1114112228	205	195	191	188	194	222	238	239	240	228	216	207
11151112280148500	192	185	179	187	192	216	247	252	244	237	225	218
1115112228	218	214	213	220	228	243	266	262	256	238	215	199
11161112280148500	190	185	185	184	192	218	248	251	244	234	228	223
1116112228	221	219	215	220	277	247	265	277	231	215	202	81
11171112280148500	76	75	73	73	80	89	102	129	124	117	116	110
1117112228	135	157	158	175	179	192	218	218	216	201	188	181
11181112280148500	166	166	167	167	173	190	208	212	206	199	198	194
1118112228	189	183	172	173	180	195	217	210	204	193	178	176
11191112280148500	172	171	167	166	182	186	202	216	222	219	218	214
1119112228	212	215	216	217	220	239	257	256	242	234	219	200
11201112280148500	190	186	181	180	186	191	208	216	232	234	226	226
1120112228	222	221	217	220	228	249	265	296	289	237	217	201
11211112280148500	190	186	180	178	186	200	237	250	244	236	233	230
1121112228	229	218	216	217	223	255	270	270	265	246	224	202
11221112280148500	195	192	190	191	208	227	262	276	262	252	237	232
1122112228	227	217	214	214	227	249	268	263	257	244	227	205
11231112280148500	195	195	195	196	207	231	265	275	246	243	240	226
1123112228	226	218	217	218	220	235	260	251	249	240	225	208
11241112280148500	198	188	186	184	190	202	218	235	238	252	261	259
1124112228	253	235	230	224	215	225	234	233	227	218	204	195
11251112280148500	187	184	180	183	189	198	210	228	234	234	226	222
1125112228	219	215	212	213	214	243	251	248	248	236	215	204
11261112280148500	197	193	194	194	203	214	227	236	237	234	224	226
1126112228	219	216	209	209	212	237	251	256	247	236	223	207
11271112280148500	197	191	187	190	195	209	220	237	227	232	230	222
1127112228	218	214	213	213	220	243	261	259	257	238	222	202

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11281112280148500	201	196	205	204	212	233	263	227	216	205	243	239
1128112228	221	220	218	217	228	256	276	270	267	249	224	207
11291112280148500	192	187	186	186	196	219	248	255	259	241	230	223
1129112228	220	222	222	223	226	250	308	267	265	258	253	221
11301112280148500	197	193	192	193	196	215	237	275	261	246	234	226
1130112228	224	221	220	217	220	246	273	272	262	245	222	201
12011112280148500	189	190	190	188	194	218	249	252	239	238	235	236
1201112228	240	241	239	237	249	272	298	299	284	268	239	219
12021112280148500	207	191	189	189	201	214	253	267	258	260	262	256
1202112228	248	241	238	243	250	277	291	290	280	267	245	217
12031112280148500	211	201	197	193	197	212	233	265	272	267	260	258
1203112228	249	252	254	255	252	287	299	284	281	276	259	221
12041112280148500	212	220	220	219	227	240	258	273	282	281	286	286
1204112228	278	259	249	249	255	286	297	301	305	295	270	252
12051112280148500	224	215	219	219	230	258	310	316	306	282	285	265
1205112228	258	247	244	253	263	296	327	336	327	318	302	279
12061112280148500	254	250	246	251	267	294	297	292	289	291	266	254
1206112228	249	241	231	235	248	282	300	299	310	297	267	262
12071112280148500	254	250	254	259	274	299	331	346	331	294	297	270
1207112228	261	249	229	228	238	291	321	322	326	296	267	248
12081112280148500	243	243	247	253	266	296	309	305	293	274	261	251
1208112228	244	232	229	216	229	282	308	314	310	293	272	246
12091112280148500	243	242	234	240	254	301	329	335	318	299	268	250
1209112228	231	221	217	220	241	275	302	297	290	280	260	246
12101112280148500	237	233	225	227	232	246	269	285	286	277	269	263
1210112228	244	235	233	226	229	262	286	283	282	273	253	232
12111112280148500	228	223	221	222	231	246	268	286	284	271	256	246
1211112228	239	234	228	229	238	268	294	297	292	276	249	225
12121112280148500	213	207	207	201	211	237	269	283	283	279	274	269
1212112228	274	279	276	203	271	292	328	328	320	292	255	230
12131112280148500	220	211	208	205	213	242	276	287	283	280	261	257
1213112228	262	262	268	268	276	309	317	314	306	287	260	238
12141112280148500	220	213	217	221	236	261	297	309	300	288	273	263
1214112228	253	246	246	247	255	291	311	314	314	294	267	245
12151112280148500	235	231	232	239	257	285	313	324	310	290	276	258
1215112228	249	241	235	237	251	272	305	310	313	296	268	244
12161112280148500	244	238	236	242	251	278	307	313	299	282	269	259
1216112228	263	255	233	232	244	296	308	310	286	269	272	247
12171112280148500	239	233	228	227	232	247	242	263	260	278	271	259
1217112228	254	250	249	248	255	285	298	289	275	258	245	232
12181112280148500	214	209	207	204	206	219	235	252	257	264	254	244
1218112228	238	238	240	243	256	291	309	307	309	295	268	245
12191112280148500	230	222	216	216	228	256	288	307	308	290	284	274
1219112228	262	257	252	247	255	302	319	315	314	297	265	237
12201112280148500	224	219	219	220	234	251	278	294	290	280	267	258
1220112228	248	247	242	244	260	290	307	310	306	292	263	239
12211112280148500	229	233	234	241	253	280	310	312	301	289	278	266
1221112228	256	247	244	244	254	292	313	310	309	294	269	249
12221112280148500	239	237	239	241	249	272	297	306	299	289	280	267

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1222112228	265	262	253	254	266	303	326	326	328	312	289	271
12231112280148500	257	252	249	246	259	273	320	327	326	327	324	305
1223112228	282	272	272	261	263	297	326	324	328	318	300	257
12241112280148500	276	273	274	278	281	300	307	321	321	314	306	294
1224112228	284	269	261	259	257	273	291	296	302	291	275	246
12251112280148500	262	253	251	253	264	277	295	317	313	303	274	259
1225112228	254	240	233	225	228	258	282	273	279	277	268	232
12261112280148500	252	243	244	229	238	282	307	315	313	296	287	276
1226112228	266	249	238	234	244	273	302	304	314	287	267	247
12271112280148500	236	231	232	239	249	269	319	339	334	307	294	279
1227112228	264	245	239	234	239	274	309	309	307	293	272	238
12281112280148500	237	233	234	240	253	280	312	321	310	293	268	251
1228112228	242	231	228	224	236	260	298	300	295	281	257	242
12291112280148500	237	237	237	240	253	271	295	310	296	280	264	256
1229112228	254	242	232	226	224	261	291	285	270	269	247	236
12301112280148500	226	216	208	211	214	225	245	280	281	274	268	247
1230112228	236	229	222	225	230	260	288	278	271	262	242	223
12311112280148500	216	210	205	209	217	240	259	281	273	256	249	251
1231112228	245	240	236	233	235	269	288	275	270	254	237	220

## 2011 Integrated Resource Planning Actual Data Filing

### R14-2-703.    Load-serving Entity Reporting Requirements

**A.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of demand-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. Hourly demand for the previous calendar year, disaggregated by:

c. Energy losses; and

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Arizona Electric Power Cooperative's 2011 hourly energy losses were estimated by applying a network energy loss rate of 2.37% to the hourly network loads from Section A-1-b.

01011112280148520	6.6	6.8	6.7	6.7	6.8	7.2	7.4	7.6	7.8	7.8	7.8	7.6
0101112228	7.1	6.8	6.6	6.3	6.3	7.1	7.8	8.0	8.2	8.0	7.6	7.4
01021112280148530	6.9	6.8	6.7	6.8	6.9	7.7	7.9	8.1	8.2	8.1	7.6	7.2
0102112228	6.8	6.7	6.4	6.2	6.4	7.2	7.6	8.3	8.3	8.0	7.5	6.8
01031112280148540	6.3	6.2	6.1	6.2	6.5	7.0	7.7	8.0	7.9	7.8	7.5	6.9
0103112228	6.8	6.4	6.3	5.9	6.1	7.3	8.0	8.0	8.1	7.7	7.2	6.7
01041112280148550	6.5	6.0	6.1	6.1	6.4	6.9	7.6	7.7	7.8	7.3	7.3	7.0
0104112228	6.4	6.0	5.9	5.9	6.0	6.9	7.9	7.8	7.8	7.3	6.7	6.0
01051112280148560	5.9	5.8	5.9	6.0	6.4	7.3	8.1	8.2	7.9	7.4	7.0	6.8
0105112228	6.6	6.2	6.0	6.0	6.1	6.8	7.4	7.4	7.4	7.3	6.5	6.2
01061112280148570	5.9	5.8	5.8	5.9	6.1	6.6	7.6	7.9	7.4	7.5	7.1	6.7
0106112228	6.4	6.2	5.9	5.9	6.1	7.2	8.1	8.1	7.9	7.5	6.9	6.2
01071112280148510	5.4	5.5	5.3	5.4	5.7	6.2	7.1	7.7	7.2	6.8	6.7	6.2
0107112228	5.9	5.6	5.4	5.3	5.4	6.7	7.4	7.5	7.2	6.9	6.5	6.0
01081112280148520	5.3	5.3	5.3	5.3	5.6	5.8	6.4	6.9	6.8	6.7	7.0	6.6
0108112228	6.2	5.9	5.7	5.7	5.7	6.4	7.2	7.1	7.3	7.0	6.5	5.6
01091112280148530	4.8	3.9	3.9	4.0	4.0	4.3	4.6	4.8	4.8	4.6	4.4	4.1
0109112228	4.2	4.0	4.0	4.0	4.2	4.4	4.9	5.0	4.9	4.6	4.2	4.0
01101112280148540	3.8	3.9	3.9	4.0	3.9	4.4	4.9	6.5	7.1	6.7	6.2	5.9
0110112228	5.8	5.6	5.6	5.8	5.9	6.4	6.9	7.1	7.2	6.9	6.4	6.1
01111112280148550	5.9	5.8	5.8	5.8	6.2	7.0	7.5	7.5	7.3	6.9	6.8	6.5
0111112228	6.4	6.0	6.0	5.9	5.9	6.5	7.1	7.4	7.5	7.8	6.3	5.7
01121112280148560	5.6	5.5	5.4	5.5	5.8	6.6	8.3	8.4	8.2	6.8	6.7	6.3
0112112228	6.0	5.8	5.7	5.6	5.6	6.6	6.7	7.8	6.9	6.6	6.0	5.7
01131112280148570	5.2	5.2	5.2	5.4	5.7	6.3	7.9	8.0	7.8	6.8	6.2	6.0
0113112228	5.7	5.4	5.4	5.3	5.6	6.1	7.5	7.7	7.7	6.9	5.6	5.2
01141112280148510	5.0	4.7	4.7	4.7	5.0	6.0	7.6	7.9	7.5	6.8	6.2	5.8
0114112228	5.6	5.5	5.3	5.3	5.4	5.9	7.6	7.7	7.0	6.0	5.6	4.8
01151112280148520	4.7	4.5	4.8	4.7	4.6	4.9	5.4	6.5	6.2	6.1	5.8	5.6
0115112228	5.4	5.4	5.3	5.4	5.3	5.8	7.3	7.3	7.0	6.8	6.4	4.8
01161112280148530	4.6	4.5	4.4	4.5	4.7	5.1	5.6	5.9	6.0	5.8	5.8	5.7

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0116112228	5.5	5.1	5.0	5.0	5.1	5.6	7.4	7.4	7.3	6.9	5.0	4.6
01171112280148540	4.6	4.5	4.4	4.5	4.5	4.9	5.2	5.8	5.9	6.0	5.7	5.5
0117112228	5.6	5.4	5.4	5.4	5.5	5.8	7.9	7.8	7.7	5.9	5.4	4.8
01181112280148550	4.5	4.5	4.5	4.5	4.7	5.1	5.9	7.0	6.6	6.2	5.3	5.2
0118112228	5.5	5.4	5.5	5.6	5.4	5.8	7.6	7.7	7.5	5.4	5.2	4.9
01191112280148560	4.6	4.4	4.4	4.5	4.7	5.3	6.2	6.5	6.2	5.9	5.9	5.7
0119112228	5.6	5.3	5.3	5.3	5.4	5.8	6.6	6.8	6.3	5.9	5.3	4.7
01201112280148570	4.6	4.4	4.4	4.3	4.5	5.1	5.9	6.4	6.1	5.9	5.8	5.6
0120112228	5.6	5.6	5.4	5.4	5.4	5.9	6.5	6.5	6.3	5.9	5.4	4.6
01211112280148510	4.6	4.5	4.6	4.7	4.8	5.4	6.3	6.8	6.5	6.1	5.9	5.6
0121112228	5.5	5.4	5.4	5.2	5.3	5.6	6.2	6.1	6.1	5.8	5.4	4.8
01221112280148520	4.6	4.6	4.6	4.6	4.7	5.1	5.8	6.6	6.3	6.3	5.8	5.6
0122112228	5.3	5.2	5.1	5.1	5.1	5.5	6.2	6.3	6.1	5.8	5.3	4.7
01231112280148530	4.4	4.4	4.4	4.5	4.6	4.7	5.1	5.5	5.7	5.6	5.2	5.0
0123112228	5.1	5.1	5.1	5.2	5.2	5.2	6.0	6.2	6.1	5.9	5.4	5.1
01241112280148540	4.7	4.5	4.5	4.6	5.0	5.7	6.5	7.2	6.8	6.7	6.5	6.1
0124112228	5.9	5.6	5.6	5.6	5.5	6.0	6.7	6.9	6.8	6.5	5.9	5.2
01251112280148550	5.3	4.9	5.0	5.1	5.2	6.0	6.8	7.3	6.8	6.6	6.4	6.2
0125112228	6.0	5.8	5.6	5.4	5.5	5.9	6.9	6.9	6.8	6.5	5.9	5.2
01261112280148560	4.9	4.8	4.8	5.0	5.3	5.9	6.9	7.4	7.0	6.5	6.2	5.7
0126112228	5.6	5.4	5.3	5.3	5.3	5.7	6.5	6.8	6.7	6.3	5.7	4.8
01271112280148570	4.6	4.5	4.6	4.6	4.9	5.5	6.4	7.1	6.6	6.2	5.9	5.7
0127112228	5.5	5.3	5.3	5.2	5.2	5.6	6.4	6.6	6.5	6.1	5.5	4.6
01281112280148510	4.5	4.4	4.5	4.6	5.0	5.6	6.5	7.1	6.6	6.1	6.0	5.7
0128112228	5.6	5.4	5.2	5.1	5.2	5.5	6.2	6.3	6.0	5.8	5.4	4.6
01291112280148520	4.4	4.3	4.4	4.5	4.6	5.0	5.6	6.5	6.5	6.3	6.0	5.7
0129112228	5.4	5.3	5.2	5.1	5.1	5.4	6.1	6.1	6.0	5.8	5.4	4.6
01301112280148530	4.5	4.5	4.6	4.6	4.9	5.2	5.4	5.8	5.9	5.8	5.6	5.4
0130112228	5.1	4.9	4.9	4.8	4.8	5.2	5.8	5.9	5.8	5.5	5.0	4.5
01311112280148540	4.4	4.3	4.5	4.5	4.4	4.8	5.5	6.3	6.2	5.9	5.9	6.0
0131112228	6.1	5.9	6.1	6.2	5.9	6.5	8.1	8.2	7.9	6.7	6.1	5.0
02011112280148550	4.6	4.5	4.6	4.7	5.0	5.4	6.3	7.1	6.7	6.6	6.5	6.2
0201112228	6.3	5.9	5.9	5.8	5.6	6.4	7.0	7.3	7.3	6.9	6.5	5.5
02021112280148560	5.2	5.2	5.3	5.4	5.7	6.1	6.9	8.5	8.2	8.1	8.0	7.9
0202112228	7.9	7.7	7.7	7.8	8.0	8.5	9.3	9.2	9.1	8.8	8.6	7.2
02031112280148570	5.7	5.5	5.5	5.6	5.8	6.2	6.5	6.3	8.1	5.8	5.6	6.2
0203112228	5.3	5.9	5.9	5.7	5.5	6.4	6.8	6.5	6.4	6.1	6.6	6.3
02041112280148510	6.4	6.4	6.5	6.4	6.7	7.3	7.9	8.0	7.7	7.4	5.8	7.1
0204112228	7.1	6.6	6.4	6.3	6.0	6.2	7.3	7.5	7.4	7.2	6.9	6.6
02051112280148520	6.5	5.9	5.8	5.9	6.1	6.3	7.3	7.6	7.5	7.2	7.0	6.8
0205112228	6.4	6.0	5.5	5.7	5.6	6.1	6.8	7.0	7.0	6.6	6.2	5.7
02061112280148530	5.5	5.5	5.5	5.5	5.8	5.7	6.2	6.7	6.8	6.6	5.9	5.9
0206112228	5.6	5.5	5.3	5.3	5.3	5.4	6.5	6.6	6.4	6.1	5.9	5.3
02071112280148540	5.2	5.1	5.2	5.2	5.6	6.0	7.1	7.4	6.9	6.5	6.2	6.1
0207112228	5.9	5.7	5.6	5.4	5.2	6.0	6.8	7.1	6.8	6.3	5.5	5.0
02081112280148550	5.0	4.5	4.5	4.6	4.8	5.4	6.4	6.8	6.4	6.2	6.0	5.7
0208112228	5.7	5.6	5.6	5.4	5.3	5.7	6.5	6.7	6.6	6.5	5.9	4.9
02091112280148560	4.8	4.7	4.6	4.7	4.8	5.3	6.1	7.4	7.0	6.6	6.3	6.1
0209112228	6.0	5.8	5.6	5.6	5.5	5.8	6.6	6.9	6.8	6.7	6.2	4.9

**2011 Integrated Resource Planning Actual Data Filing**

02101112280148570	4.9	4.8	4.8	4.8	5.0	5.5	6.5	7.6	7.2	6.7	5.9	5.8
0210112228	5.6	5.4	5.4	5.3	5.3	5.8	6.8	7.0	6.9	6.7	6.3	4.9
02111112280148510	4.3	4.2	4.3	4.3	4.4	4.8	5.2	5.7	5.4	5.1	6.0	5.6
0211112228	5.3	5.0	4.9	4.9	4.4	5.4	6.1	6.2	6.3	6.2	5.7	4.7
02121112280148520	4.7	4.9	4.8	4.8	5.1	5.4	5.8	7.0	6.8	6.5	6.2	5.8
0212112228	5.5	5.3	5.2	5.2	5.1	5.6	5.9	6.1	6.0	5.7	5.4	4.5
02131112280148530	4.5	4.7	4.7	4.7	5.0	5.2	5.8	6.0	5.8	5.5	5.4	5.2
0213112228	5.1	5.1	5.0	4.9	5.0	5.0	5.5	5.7	5.8	5.5	5.1	4.9
02141112280148540	4.4	4.4	4.4	4.4	4.5	4.8	5.2	6.2	6.0	6.0	5.5	5.4
0214112228	5.3	5.2	4.7	5.2	5.1	5.3	6.2	6.4	6.4	6.0	5.4	4.5
02151112280148550	4.5	4.5	4.5	4.6	4.8	5.2	6.2	6.3	5.7	5.6	4.9	4.9
0215112228	4.8	4.7	4.7	4.7	5.0	5.1	5.6	5.8	5.8	5.3	4.7	4.5
02161112280148560	4.4	4.4	4.4	4.5	4.7	5.1	5.8	5.7	5.4	5.0	5.1	5.0
0216112228	5.2	5.0	4.9	5.0	4.9	5.1	5.6	5.8	5.6	5.4	5.0	4.6
02171112280148570	4.4	4.4	4.3	4.2	4.4	4.6	5.1	5.4	5.3	5.2	5.2	5.2
0217112228	5.2	5.0	5.1	5.0	4.9	5.0	5.5	5.7	5.6	5.3	5.0	4.6
02181112280148510	4.5	4.3	4.4	4.5	4.6	4.9	5.5	6.1	5.7	5.5	5.5	5.3
0218112228	5.3	5.2	5.3	5.3	5.1	5.3	6.1	6.2	6.0	5.6	5.1	4.4
02191112280148520	4.4	4.3	4.2	4.3	4.4	4.6	5.2	5.3	5.2	5.2	5.4	5.3
0219112228	5.5	5.5	5.5	5.4	5.4	5.6	5.7	6.2	6.1	5.8	5.3	4.6
02201112280148530	4.4	4.3	4.3	4.3	4.4	4.5	5.0	5.3	5.3	5.4	5.5	5.6
0220112228	5.2	4.9	4.9	4.9	4.7	5.0	5.4	5.7	5.8	5.6	5.3	4.9
02211112280148540	4.7	4.6	4.7	4.7	4.9	4.8	5.2	6.2	6.4	6.1	6.1	5.9
0221112228	5.8	5.7	5.6	5.5	5.3	5.6	6.2	6.5	6.7	6.4	5.9	5.0
02221112280148550	4.7	4.8	4.8	4.8	5.1	5.8	6.2	7.2	6.7	6.4	6.0	5.7
0222112228	5.4	5.3	5.3	5.2	5.0	5.3	6.0	6.3	6.5	6.1	5.7	5.0
02231112280148560	4.9	4.6	4.6	4.8	5.1	5.6	6.4	7.0	6.5	6.1	5.6	5.5
0223112228	5.3	5.2	5.1	5.0	5.1	5.3	6.1	6.5	6.5	6.0	5.5	4.7
02241112280148570	4.5	4.5	4.5	4.6	4.7	5.1	5.8	6.6	6.3	5.9	5.4	5.3
0224112228	5.1	5.0	5.0	5.1	5.1	5.4	6.0	6.5	6.5	6.1	5.6	4.6
02251112280148510	4.5	4.5	4.5	4.6	4.8	5.3	5.9	6.8	6.4	6.1	5.8	5.6
0225112228	5.4	5.2	5.2	5.2	5.2	5.3	6.1	6.2	6.1	5.8	5.4	4.5
02261112280148520	4.5	4.4	4.4	4.4	4.6	4.8	5.1	6.0	6.1	6.3	6.3	6.1
0226112228	5.7	5.5	5.5	5.6	5.5	5.9	6.4	6.6	6.3	5.9	5.6	4.6
02271112280148530	4.7	4.7	4.7	4.7	4.7	5.2	5.6	5.6	5.7	5.5	5.7	5.4
0227112228	5.2	5.0	5.3	5.0	5.0	5.2	5.6	5.7	7.5	7.2	6.9	6.6
02281112280148540	5.2	5.0	5.0	5.1	5.5	5.9	6.6	7.2	7.1	7.5	7.2	6.1
0228112228	5.9	5.6	5.1	5.1	5.2	5.4	6.2	6.7	6.7	6.1	5.5	4.9
03011112280148560	4.6	4.5	4.5	4.6	4.6	4.9	5.5	6.3	5.9	5.9	5.5	5.3
0301112228	5.2	5.1	5.2	5.1	5.0	5.2	5.6	5.9	5.9	5.6	5.1	4.6
03021112280148570	4.5	4.5	4.6	4.7	4.9	5.3	6.1	6.1	5.7	5.6	5.7	5.5
0302112228	5.6	5.4	5.3	5.4	5.3	5.4	5.8	7.1	7.1	6.5	5.2	4.8
03031112280148510	4.4	4.3	4.3	4.3	4.4	4.8	5.4	5.6	5.5	5.5	5.6	5.3
0303112228	5.3	5.4	5.3	5.3	5.4	5.5	5.8	6.2	6.2	6.0	5.3	4.7
03041112280148520	4.4	4.4	4.3	4.3	4.4	4.8	5.3	5.5	5.4	5.2	5.4	5.4
0304112228	5.3	5.3	5.1	5.2	4.8	5.0	5.3	5.5	5.5	5.3	5.1	4.7
03051112280148530	4.4	4.3	4.4	4.4	4.4	4.6	4.9	5.4	5.5	5.4	5.4	5.3
0305112228	5.2	5.1	5.0	5.0	4.7	4.9	5.4	5.5	5.5	5.4	5.0	4.5
03061112280148540	4.7	4.6	4.6	4.6	4.7	4.8	5.1	5.3	5.3	5.2	5.4	5.2

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0306112228	5.0	5.0	5.0	5.0	4.8	5.0	5.2	5.6	5.6	5.4	4.9	4.3
03071112280148550	4.5	4.4	4.3	4.3	4.4	4.6	5.1	5.3	5.3	5.3	5.7	5.6
0307112228	5.6	5.6	5.5	5.4	5.2	5.4	6.0	6.4	6.3	5.9	5.4	4.8
03081112280148560	4.6	4.5	4.5	4.5	4.5	4.7	5.2	5.6	5.6	5.6	5.6	5.6
0308112228	5.4	5.3	5.3	5.2	5.3	5.4	5.8	6.3	5.9	5.7	5.3	4.7
03091112280148570	4.6	4.5	4.5	4.6	4.7	5.1	5.7	5.8	5.8	5.5	5.4	5.2
0309112228	5.3	5.5	5.3	5.2	5.2	5.4	5.8	7.0	6.5	5.6	5.1	4.7
03101112280148510	4.4	4.2	4.2	4.3	4.4	4.9	5.5	5.6	5.5	5.4	5.3	5.2
0310112228	5.3	5.2	5.2	5.3	5.7	5.9	6.2	6.4	6.0	5.7	5.1	4.6
03111112280148520	4.4	4.3	4.3	4.3	4.4	4.7	5.3	5.5	5.4	5.3	5.5	5.4
0311112228	5.4	5.5	4.7	4.6	4.4	4.4	4.6	4.9	5.0	4.7	4.5	3.8
03121112280148530	3.6	3.3	3.2	3.2	3.3	3.3	3.6	3.7	3.8	3.9	4.1	4.0
0312112228	4.1	4.0	4.0	3.9	3.7	3.9	4.0	4.3	4.3	4.1	3.9	3.4
03131112280148540	3.2	3.2	3.2	3.2	3.2	3.4	3.5	3.6	3.7	3.6	3.9	3.6
0313112228	3.7	3.7	4.0	4.0	3.8	4.0	4.3	4.4	4.5	4.3	4.0	3.3
03141112280148550	3.2	3.0	3.0	3.0	2.9	3.2	3.8	4.0	4.0	4.0	4.3	4.2
0314112228	4.2	4.2	4.2	4.2	4.2	4.5	4.6	4.6	4.7	4.5	4.1	3.4
03151112280148560	3.4	3.2	3.1	3.2	3.3	3.5	3.9	2.9	3.3	4.0	4.3	4.2
0315112228	4.2	4.2	4.2	4.2	4.3	4.4	4.5	4.6	4.6	4.3	4.2	3.5
03161112280148570	3.3	3.3	3.1	3.1	3.1	3.3	3.7	3.7	3.7	3.7	4.1	4.2
0316112228	4.3	4.3	4.3	4.3	4.2	4.4	4.3	4.5	4.7	4.5	3.8	3.4
03171112280148510	3.1	3.0	3.0	3.0	3.1	3.3	3.7	3.8	3.7	3.8	4.2	4.2
0317112228	4.2	4.2	4.3	4.3	4.4	4.6	4.7	4.8	4.7	4.4	3.8	3.2
03181112280148520	3.1	2.9	2.9	2.9	3.0	3.3	3.6	3.6	3.8	3.9	4.3	4.3
0318112228	4.3	4.0	4.4	4.4	4.3	4.4	4.6	4.7	4.6	4.2	3.7	3.2
03191112280148530	3.1	3.0	3.0	3.0	2.9	3.2	3.3	3.5	3.7	3.6	4.0	4.1
0319112228	4.2	4.2	4.3	4.3	4.0	4.1	4.3	4.4	4.3	4.2	3.6	3.3
03201112280148540	3.1	3.1	3.0	2.9	2.9	3.0	3.4	3.4	3.6	3.8	3.9	3.9
0320112228	3.9	3.9	3.9	3.9	3.7	3.8	4.0	4.3	4.3	4.0	3.5	3.0
03211112280148550	2.8	2.8	2.8	2.8	2.8	3.2	3.7	3.9	3.9	3.9	4.3	4.3
0321112228	4.2	4.2	1.7	1.7	1.7	1.9	2.1	2.2	2.1	1.9	1.3	1.0
03221112280148560	1.2	1.7	2.7	2.0	1.2	1.3	2.2	2.3	2.3	1.9	1.9	1.9
0322112228	1.8	1.8	1.8	1.8	1.7	1.8	1.9	2.2	2.2	2.0	1.4	1.3
03231112280148570	1.5	1.5	2.7	2.7	2.7	2.9	3.6	3.6	3.5	4.2	4.2	4.0
0323112228	4.0	4.0	3.9	4.1	3.9	4.0	4.1	4.6	4.5	4.3	3.7	3.2
03241112280148510	3.0	3.0	2.9	3.0	3.2	3.5	4.0	3.9	3.8	3.5	3.7	3.9
0324112228	3.8	3.8	3.8	3.8	3.5	3.6	3.8	3.9	4.1	4.1	3.8	3.4
03251112280148520	3.1	3.1	3.1	3.1	3.2	3.5	4.3	4.4	4.3	4.3	4.3	4.2
0325112228	4.2	4.2	4.1	4.1	4.2	4.3	4.4	4.6	4.5	4.3	3.6	3.2
03261112280148530	3.3	3.3	3.3	3.2	2.9	3.0	3.5	3.7	4.0	4.1	4.3	4.2
0326112228	4.2	4.2	4.2	4.0	3.9	4.0	4.1	4.3	4.4	4.2	3.5	3.3
03271112280148540	3.0	2.9	2.9	2.9	3.0	3.2	3.7	3.8	3.8	4.0	4.1	4.1
0327112228	4.2	4.0	4.0	3.9	3.8	3.9	4.0	4.3	4.3	4.3	3.7	3.3
03281112280148550	3.1	3.0	3.0	3.1	3.2	3.4	3.8	3.8	3.9	3.9	4.0	3.3
0328112228	3.3	3.3	3.2	3.3	3.3	3.4	3.9	4.2	4.1	4.0	3.7	3.4
03291112280148560	3.4	2.8	2.8	2.8	3.0	3.7	4.1	4.3	4.2	4.2	4.2	4.2
0329112228	4.3	4.3	4.3	4.4	4.2	4.4	4.6	4.8	4.7	4.5	4.1	3.4
03301112280148570	3.2	3.2	3.1	3.1	3.0	3.5	4.0	4.1	4.3	4.1	4.3	4.3
0330112228	4.3	4.3	4.4	4.4	4.3	4.4	4.5	4.7	4.6	4.5	3.8	3.3

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03311112280148510	2.8	2.8	2.8	2.8	3.0	3.3	4.0	4.2	4.2	4.3	4.3	4.4
0331112228	4.5	4.5	4.5	4.5	4.6	4.7	4.7	4.8	4.7	4.6	3.8	3.3
04011112280148520	3.5	3.3	3.2	3.1	3.2	3.5	3.9	4.1	4.2	4.3	4.5	4.9
0401112228	5.0	5.1	5.2	5.2	5.4	5.4	5.3	5.2	5.2	5.0	4.5	3.9
04021112280148530	3.6	3.5	3.2	3.1	3.1	3.2	3.5	3.7	3.9	4.2	4.7	4.9
0402112228	5.1	5.2	5.5	5.5	5.5	5.3	5.3	5.3	5.3	5.0	4.5	4.1
04031112280148540	3.6	3.4	3.3	3.3	3.3	3.4	3.3	3.5	3.7	4.0	4.4	4.7
0403112228	4.8	4.9	5.0	5.0	5.0	5.0	4.9	5.0	4.9	4.6	4.0	3.6
04041112280148550	3.0	3.0	2.9	3.0	3.0	3.4	3.9	4.0	3.8	3.9	4.0	4.2
0404112228	4.4	4.4	4.4	4.4	4.0	4.1	4.2	4.7	4.7	4.5	3.8	3.4
04051112280148560	3.1	3.1	3.0	3.0	3.1	3.4	3.7	3.9	4.0	4.1	4.1	4.3
0405112228	4.4	4.6	4.7	4.8	5.0	5.1	5.1	5.2	5.1	4.8	4.3	3.7
04061112280148570	3.3	3.2	3.1	3.1	3.0	3.4	3.8	3.9	4.1	3.8	4.5	4.7
0406112228	4.7	4.7	4.7	4.5	4.5	4.5	4.5	4.7	4.7	4.5	4.0	3.5
04071112280148510	3.0	3.1	3.1	3.0	3.0	3.4	4.0	4.1	4.1	4.1	4.1	4.2
0407112228	4.2	4.0	4.2	4.3	4.3	4.3	4.3	4.5	4.5	4.3	3.9	3.4
04081112280148520	3.3	3.0	3.1	3.0	3.1	3.5	4.0	4.1	4.1	4.2	4.2	4.3
0408112228	4.2	4.1	4.1	4.1	4.1	4.2	4.2	4.4	4.4	4.3	4.0	3.5
04091112280148530	3.2	3.1	3.0	3.1	3.0	3.3	3.4	3.8	3.9	4.1	4.2	4.3
0409112228	4.2	4.1	4.1	4.1	4.1	4.2	4.3	4.5	4.5	4.4	4.0	3.5
04101112280148540	3.6	3.5	3.5	3.5	3.6	3.7	3.9	4.0	4.1	4.1	4.1	3.9
0410112228	4.0	3.7	3.7	3.6	3.6	3.9	4.1	4.5	4.3	4.2	3.9	3.6
04111112280148550	3.1	3.0	3.0	3.1	3.2	3.7	4.2	4.4	4.3	4.2	4.1	4.0
0411112228	4.2	4.0	3.9	3.8	3.9	4.1	4.2	4.6	4.5	4.2	3.7	3.2
04121112280148560	3.1	3.0	3.1	3.1	3.3	3.7	4.0	4.1	4.0	3.9	4.0	4.1
0412112228	4.4	4.3	4.5	4.5	4.6	4.4	4.5	4.7	4.6	4.4	4.0	3.5
04131112280148570	3.2	3.2	3.1	3.1	3.1	3.6	4.0	4.1	3.8	3.9	4.0	4.1
0413112228	4.2	4.3	4.3	4.4	4.4	4.4	4.3	4.5	4.4	4.1	3.8	3.4
04141112280148510	3.1	3.1	2.9	2.9	3.2	3.6	3.8	3.8	3.8	4.0	4.1	4.2
0414112228	4.1	4.0	3.9	3.9	4.0	4.1	4.1	4.4	4.4	4.2	3.8	3.4
04151112280148520	3.1	3.0	3.0	3.0	3.2	3.6	3.8	4.0	3.9	3.9	3.9	4.0
0415112228	4.1	4.4	4.3	4.3	4.3	4.3	4.5	4.6	4.6	4.5	3.9	3.4
04161112280148530	3.1	3.0	3.0	3.0	2.9	3.0	3.1	3.3	3.7	3.8	4.1	4.2
0416112228	4.4	4.6	4.9	5.1	5.1	5.1	5.0	5.0	4.6	4.5	4.2	3.6
04171112280148540	3.4	3.3	3.3	3.3	3.2	3.3	3.1	3.3	3.8	4.2	4.6	4.8
0417112228	5.1	5.2	5.3	5.3	5.3	5.3	5.2	5.3	5.2	5.0	4.3	3.8
04181112280148550	3.4	3.2	3.0	3.0	3.0	3.4	3.3	3.7	3.8	4.4	4.5	4.8
0418112228	5.0	5.1	5.2	5.2	5.3	5.1	4.9	5.3	5.2	4.7	4.3	3.8
04191112280148560	3.6	3.4	3.2	3.3	3.3	3.6	3.7	3.9	4.4	4.4	4.5	4.7
0419112228	4.9	5.1	5.2	5.2	5.1	4.9	4.9	5.1	5.0	4.8	4.4	3.9
04201112280148570	3.6	3.5	3.3	3.4	3.5	3.4	4.0	3.9	4.2	4.3	4.4	4.7
0420112228	4.8	5.0	5.2	5.2	5.1	5.0	5.0	5.0	4.9	4.8	4.4	3.9
04211112280148510	3.7	3.5	3.4	3.4	3.5	3.8	4.0	4.2	4.3	4.4	4.6	4.9
0421112228	4.9	5.1	5.2	5.3	5.3	5.3	5.1	5.2	5.1	4.9	4.4	3.9
04221112280148520	3.6	3.5	3.4	3.3	3.4	3.7	4.2	4.4	4.5	4.6	4.7	4.9
0422112228	5.0	5.1	5.0	5.3	5.3	5.3	5.2	5.2	5.1	4.9	4.4	3.9
04231112280148530	3.6	3.5	3.4	3.3	3.4	3.6	3.8	3.9	4.0	4.2	4.3	4.6
0423112228	4.7	5.0	5.0	5.0	4.9	4.9	4.8	5.0	4.9	4.7	4.4	4.0
04241112280148540	3.6	3.5	3.4	3.3	3.4	3.5	3.4	3.8	4.1	4.4	4.6	4.8



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0424112228	4.9	5.0	5.1	5.1	4.9	4.9	4.8	4.9	4.9	4.5	3.9	3.7
04251112280148550	3.1	2.8	2.9	2.9	3.1	3.3	3.6	3.9	4.1	4.2	4.4	4.6
0425112228	4.7	4.8	5.0	5.0	5.1	5.0	4.9	5.1	5.0	4.7	4.3	3.8
04261112280148560	3.6	3.3	3.1	3.1	3.4	3.6	3.7	4.0	4.2	4.2	4.4	4.7
0426112228	4.7	4.8	4.9	4.9	4.9	4.9	4.7	4.8	5.0	4.4	4.1	3.7
04271112280148570	3.5	3.2	3.1	3.1	3.1	3.4	3.6	4.0	4.1	4.4	4.5	4.6
0427112228	4.6	4.7	4.8	4.9	5.0	5.0	5.0	5.1	5.0	4.8	4.3	3.5
04281112280148510	3.2	3.0	3.0	3.0	3.0	3.5	3.7	3.9	3.9	4.1	4.4	4.6
0428112228	4.7	5.0	5.2	5.3	5.4	5.5	5.2	5.4	5.3	5.0	4.4	3.9
04291112280148520	3.6	3.5	3.1	3.1	3.2	3.8	4.1	4.3	4.5	4.6	4.7	5.0
0429112228	5.0	5.2	5.3	5.2	5.2	5.2	5.2	5.2	5.1	4.7	4.4	4.0
04301112280148530	3.6	3.3	3.2	3.2	3.1	3.2	3.4	3.7	3.9	4.3	4.1	4.4
0430112228	4.4	4.5	4.4	4.4	4.4	4.4	4.3	4.5	4.6	4.2	3.9	3.3
05011112280148540	3.4	3.1	3.2	3.1	3.1	3.4	3.4	3.7	3.8	4.1	4.1	4.1
0501112228	4.2	4.1	4.1	4.2	4.2	4.3	4.4	4.7	4.7	4.4	3.8	3.2
05021112280148550	3.2	3.1	2.9	2.8	3.0	3.2	3.8	4.2	4.2	4.2	4.2	4.2
0502112228	4.4	4.3	4.5	4.5	4.5	4.6	4.6	4.8	4.8	4.6	4.1	3.6
05031112280148560	3.1	3.4	3.4	3.3	3.1	3.3	3.5	3.6	3.6	3.7	3.8	4.4
0503112228	3.8	3.9	4.6	4.7	4.8	4.9	5.0	5.1	5.0	4.7	4.3	3.9
05041112280148570	3.8	3.6	3.5	3.5	3.4	3.7	3.9	4.1	4.1	4.3	4.6	4.8
0504112228	5.0	5.2	5.3	6.1	5.5	5.5	5.5	5.5	5.4	5.1	4.4	4.0
05051112280148510	3.8	3.8	3.8	3.7	3.7	3.8	4.0	4.1	4.1	4.5	4.7	4.9
0505112228	5.1	5.3	5.4	5.5	5.6	6.3	5.6	5.5	5.3	5.0	4.4	4.0
05061112280148520	4.1	4.1	3.9	3.8	3.9	4.1	4.8	4.9	4.4	5.0	5.2	5.5
0506112228	5.8	5.9	5.5	5.7	5.7	5.7	5.5	5.4	5.2	4.8	4.4	4.8
05071112280148530	4.7	4.6	4.5	4.4	4.4	4.4	4.8	4.9	5.0	5.1	5.2	5.5
0507112228	5.7	5.8	5.7	5.7	5.8	6.1	6.3	6.2	6.0	6.6	5.9	5.4
05081112280148540	5.3	5.1	4.9	4.7	4.8	4.9	5.0	5.2	5.6	5.8	6.3	6.5
0508112228	6.7	6.8	6.9	7.1	7.2	7.1	6.9	6.8	6.8	6.1	5.6	5.2
05091112280148550	4.9	4.7	4.4	4.4	4.4	4.5	5.5	5.9	6.2	6.5	6.8	7.0
0509112228	6.8	6.9	7.0	7.1	7.2	7.1	7.1	7.1	6.8	6.7	4.4	4.2
05101112280148560	3.6	3.4	3.4	3.4	3.5	3.6	4.0	4.2	3.6	3.7	3.8	3.8
0510112228	4.1	3.9	4.1	4.1	4.1	4.1	4.2	4.3	4.6	4.1	4.0	3.8
05111112280148570	3.8	3.6	3.5	3.4	3.5	3.6	4.1	4.2	4.2	4.2	4.2	4.2
0511112228	4.3	4.2	4.5	4.5	4.6	4.7	4.7	4.8	4.8	4.6	4.3	3.9
05121112280148510	3.7	3.5	3.4	3.4	3.4	3.6	3.9	4.1	4.2	4.3	4.5	4.6
0512112228	4.7	4.8	5.0	5.0	5.2	5.2	5.2	5.2	5.1	4.8	4.4	4.0
05131112280148520	3.7	3.5	3.4	3.4	3.2	3.6	4.0	5.1	5.2	5.4	5.4	6.0
0513112228	6.6	6.8	7.0	7.5	5.6	7.1	8.5	8.2	7.4	6.9	5.6	5.2
05141112280148530	5.1	4.8	4.7	4.6	4.5	4.9	5.2	5.6	5.8	6.2	6.4	6.9
0514112228	7.2	7.4	7.4	7.3	7.3	7.3	7.2	6.9	6.8	6.5	5.7	5.3
05151112280148540	3.7	3.5	4.9	4.7	4.7	4.5	4.6	4.9	5.4	5.8	6.1	6.5
0515112228	6.8	7.2	7.2	7.4	7.6	7.6	7.2	7.1	7.0	6.3	5.7	5.3
05161112280148550	5.0	4.7	4.6	4.6	4.4	4.5	4.9	4.6	4.9	5.1	5.5	5.7
0516112228	6.0	5.8	6.1	6.0	6.3	6.5	7.0	6.2	6.5	5.7	5.4	5.0
05171112280148560	4.7	4.6	4.6	4.6	4.6	4.8	5.7	5.4	5.6	6.2	6.3	6.5
0517112228	6.7	6.5	6.5	6.6	7.2	7.2	7.2	7.4	7.6	6.9	5.4	5.1
05181112280148570	5.1	4.9	4.8	4.8	4.8	5.1	5.7	5.9	6.2	6.4	6.5	6.7
0518112228	6.7	6.7	6.8	6.7	6.8	6.7	6.6	7.0	6.8	6.3	5.4	5.1

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05191112280148510	4.8	4.7	4.6	4.6	4.8	4.9	5.7	5.2	5.4	6.2	6.1	6.1
0519112228	6.2	6.2	6.3	6.3	6.5	6.1	6.1	6.8	6.9	6.5	5.4	5.1
05201112280148520	4.9	4.8	4.7	4.7	4.8	5.0	5.6	5.6	5.8	5.8	5.8	6.5
0520112228	6.8	7.2	7.2	7.3	7.5	7.5	6.9	7.0	7.0	6.4	5.6	5.3
05211112280148530	5.2	5.0	4.8	4.7	4.7	4.6	4.8	5.2	5.5	6.0	6.2	6.4
0521112228	6.7	6.7	6.8	6.9	7.1	7.4	7.6	7.3	6.9	6.6	5.8	5.4
05221112280148540	5.1	4.8	4.7	4.6	4.6	4.5	4.6	4.9	5.1	5.5	5.9	6.4
0522112228	6.6	6.9	7.1	7.3	7.5	7.3	7.3	7.2	6.7	6.3	5.7	5.1
05231112280148550	5.0	4.8	4.7	4.6	4.6	4.7	5.7	6.0	6.4	6.3	6.5	6.7
0523112228	6.9	7.0	7.4	8.2	8.6	7.9	7.8	7.6	7.5	6.9	5.9	5.5
05241112280148560	5.2	5.0	4.9	4.8	4.8	5.0	5.7	5.3	5.9	6.1	6.1	6.7
0524112228	6.9	7.2	7.3	7.4	6.7	6.7	5.7	5.7	6.3	6.7	6.0	5.5
05251112280148570	5.2	5.0	4.8	4.6	4.7	4.7	5.0	5.4	5.7	6.1	6.3	6.7
0525112228	7.1	8.2	7.9	8.5	8.6	8.6	8.3	8.3	8.2	7.8	7.3	6.8
05261112280148510	5.3	5.0	4.8	4.8	4.9	5.0	5.1	5.5	7.1	7.4	7.4	7.9
0526112228	8.5	8.7	8.7	8.7	8.8	8.8	8.6	8.3	8.3	7.7	6.8	6.0
05271112280148520	5.9	5.1	4.9	4.8	4.8	4.9	5.5	5.9	6.4	6.8	7.1	7.5
0527112228	8.1	8.0	8.6	8.3	8.6	8.6	8.3	8.1	8.5	7.5	6.9	6.1
05281112280148530	5.4	5.1	5.2	5.1	5.1	5.1	5.0	5.1	6.0	6.9	7.4	7.9
0528112228	8.3	8.3	8.4	8.6	8.5	8.5	8.5	8.4	8.6	7.6	7.0	5.9
05291112280148540	5.5	5.2	5.2	5.1	5.0	4.9	5.0	5.4	5.6	6.4	7.0	7.0
0529112228	7.4	7.5	7.5	7.6	7.5	7.5	7.2	6.8	6.8	6.1	5.5	5.2
05301112280148550	5.2	5.1	5.0	4.7	4.7	4.8	5.1	5.3	5.4	5.7	5.8	6.2
0530112228	6.4	6.6	6.9	7.0	6.9	7.2	7.1	6.8	6.8	6.2	5.9	5.3
05311112280148560	4.9	4.7	4.5	4.5	4.6	4.8	5.1	5.6	5.8	6.1	6.9	7.4
0531112228	7.9	7.8	8.3	8.5	8.7	8.7	8.4	8.3	6.7	6.3	5.6	5.2
06011112280148570	5.0	4.8	4.7	4.7	4.7	4.7	5.1	5.5	5.8	7.1	7.0	8.4
0601112228	7.8	8.0	8.1	8.1	8.0	8.3	8.0	7.5	7.8	7.9	6.0	5.3
06021112280148510	5.2	5.0	4.7	4.7	4.4	4.5	4.8	5.0	5.2	6.3	6.4	7.1
0602112228	7.5	7.8	8.0	8.1	8.2	8.1	8.0	7.7	7.6	7.3	6.4	5.7
06031112280148520	5.2	5.0	4.8	4.8	4.6	4.6	5.0	5.1	6.0	6.3	6.8	7.2
0603112228	8.2	8.6	8.8	9.1	9.2	9.0	8.0	7.7	7.6	6.9	5.9	5.1
06041112280148530	4.9	4.8	4.7	4.7	4.6	4.6	4.6	4.9	5.5	6.3	7.1	7.5
0604112228	7.8	8.2	8.4	8.6	8.6	8.7	8.4	8.1	7.9	7.4	6.3	5.4
06051112280148540	5.7	5.5	5.2	5.1	5.0	4.8	4.9	5.3	5.6	7.0	7.8	8.4
0605112228	8.1	8.6	9.3	9.4	9.5	9.5	9.3	8.8	9.5	8.6	6.8	6.4
06061112280148550	5.6	5.3	5.1	4.8	5.0	5.0	5.2	5.9	6.9	7.3	7.5	7.9
0606112228	8.6	9.0	9.3	9.4	9.4	9.1	8.5	8.1	7.9	7.6	6.6	5.8
06071112280148560	5.3	5.0	4.7	4.6	4.8	4.9	5.2	5.7	6.1	6.9	7.1	7.5
0607112228	7.7	8.0	8.4	8.6	8.7	8.7	8.4	7.9	7.8	7.4	6.4	5.8
06081112280148570	5.4	5.2	5.1	5.1	5.1	5.2	5.4	5.7	6.2	6.7	7.0	7.4
0608112228	7.7	8.8	8.6	8.8	8.8	8.8	8.1	7.9	7.7	7.3	6.5	5.4
06091112280148510	5.1	4.8	4.6	4.5	4.5	4.5	5.2	5.6	6.2	6.7	7.0	7.5
0609112228	7.7	8.0	8.8	9.0	9.0	9.4	9.3	8.6	8.5	7.9	6.3	5.6
06101112280148520	5.4	5.1	4.9	4.8	4.8	4.8	5.3	5.8	6.4	7.3	7.8	8.4
0610112228	8.9	9.0	9.3	9.6	9.6	9.6	9.4	8.5	8.1	7.7	6.4	5.7
06111112280148530	5.5	5.2	4.9	4.8	4.8	4.8	4.8	5.5	6.1	6.8	8.1	8.5
0611112228	8.4	8.4	8.7	8.8	8.8	8.8	8.6	8.0	7.8	7.4	6.4	5.6
06121112280148540	5.4	5.1	4.9	4.8	4.7	4.7	4.7	5.1	5.9	6.7	7.3	7.9

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0612112228	7.7	7.9	8.3	8.5	8.6	8.3	7.9	7.3	8.1	7.4	6.5	5.7
06131112280148550	5.1	4.9	4.8	4.7	4.7	4.7	4.9	5.6	5.8	6.5	6.7	7.4
0613112228	7.9	8.3	9.0	9.1	9.1	9.2	9.0	8.0	8.3	7.2	6.5	5.8
06141112280148560	5.6	5.2	4.9	4.9	5.0	5.0	5.5	6.1	6.1	6.9	7.4	7.8
0614112228	8.4	8.9	9.0	9.2	9.3	9.3	9.2	9.0	8.9	8.6	7.5	6.4
06151112280148570	6.0	5.7	5.6	5.4	5.4	5.3	5.8	6.3	7.1	8.1	8.4	9.4
0615112228	9.7	10.0	10.1	10.1	10.2	9.8	10.1	9.6	9.6	9.4	7.8	6.8
06161112280148510	6.5	6.2	5.9	5.7	5.7	5.7	5.8	6.5	7.3	8.9	9.2	9.4
0616112228	9.7	9.8	10.0	10.1	10.2	10.1	10.0	9.6	9.1	8.5	7.4	6.4
06171112280148520	6.3	5.9	5.6	5.5	5.5	5.6	5.8	6.5	7.1	7.5	7.9	8.6
0617112228	8.8	9.2	9.4	9.5	9.6	9.6	9.3	8.5	8.5	8.1	7.5	6.6
06181112280148530	6.0	5.6	5.4	5.2	5.2	5.1	5.1	5.3	6.2	6.9	7.8	8.1
0618112228	8.9	9.1	9.5	9.7	9.6	9.6	9.3	8.9	8.7	7.4	7.2	6.3
06191112280148540	5.9	5.4	5.2	5.0	4.9	4.9	5.1	5.4	6.4	7.5	8.2	8.8
0619112228	8.3	8.5	8.7	8.6	8.7	8.4	8.5	7.9	8.4	7.7	6.8	5.9
06201112280148550	5.5	5.3	5.0	4.9	5.0	5.0	5.3	5.9	6.6	7.7	8.4	9.2
0620112228	9.3	9.5	9.7	9.8	9.9	10.0	9.8	9.0	8.6	7.9	6.7	5.9
06211112280148560	5.7	5.2	5.0	5.0	5.1	5.1	5.0	5.6	6.1	6.7	7.6	8.5
0621112228	9.0	9.3	9.6	9.8	9.9	9.9	9.8	8.9	9.2	8.6	7.4	6.3
06221112280148570	6.0	5.7	5.5	5.3	5.3	5.4	5.5	6.0	7.0	7.8	8.7	9.2
0622112228	9.5	9.6	9.8	10.0	10.0	10.0	9.9	9.6	9.0	8.7	8.3	7.0
06231112280148510	6.3	6.2	5.8	5.7	5.6	5.8	5.4	6.3	7.4	8.3	8.8	9.3
0623112228	9.0	9.2	9.0	8.8	9.4	9.3	9.1	8.9	9.5	7.6	7.2	6.6
06241112280148520	6.1	5.7	5.2	4.5	4.4	4.5	4.4	4.9	6.4	7.7	8.1	8.7
0624112228	9.0	9.7	9.8	9.8	10.0	9.9	9.8	9.5	9.4	9.2	8.0	6.9
06251112280148530	7.1	6.2	5.7	5.5	5.4	5.5	5.5	5.5	6.7	7.9	8.7	9.4
0625112228	9.7	10.0	10.2	10.1	10.1	10.1	10.0	9.3	9.4	9.1	8.3	7.2
06261112280148540	6.7	5.9	5.3	5.1	5.0	5.0	5.1	5.9	7.1	8.3	9.1	9.8
0626112228	9.5	9.7	9.8	7.3	9.2	10.1	9.8	9.2	9.8	9.0	8.4	7.5
06271112280148550	6.2	5.7	5.4	5.4	5.4	5.4	5.5	6.3	7.1	8.2	9.2	9.7
0627112228	9.3	9.6	9.7	9.9	10.0	9.9	9.7	9.4	9.9	9.3	8.7	7.6
06281112280148560	7.0	6.4	5.9	5.7	5.5	5.6	5.6	6.5	7.7	8.6	9.3	9.7
0628112228	10.0	10.2	10.2	10.3	10.4	10.3	10.2	10.0	9.8	9.5	8.7	7.7
06291112280148570	7.5	7.0	6.6	6.3	6.1	5.0	4.8	5.1	5.2	6.8	6.4	6.7
0629112228	7.0	8.0	8.2	8.3	8.2	8.1	9.0	8.9	9.3	8.8	8.6	7.7
06301112280148510	6.6	6.2	5.8	5.6	5.5	5.5	5.7	6.5	7.2	8.1	8.7	9.8
0630112228	9.6	9.8	10.1	10.2	10.3	10.0	9.6	9.4	9.3	8.4	7.7	6.7
07011112280148520	6.9	6.7	6.4	6.1	6.1	6.1	5.9	6.6	7.4	8.2	9.2	9.8
0701112228	9.5	9.7	9.8	9.9	10.0	9.9	9.6	9.1	9.9	9.7	9.0	7.5
07021112280148530	7.2	7.0	6.8	6.5	6.4	6.3	5.7	6.8	7.3	9.2	10.0	10.3
0702112228	9.7	10.1	10.1	10.1	10.2	10.1	9.8	9.4	10.2	9.9	9.1	8.1
07031112280148540	7.3	6.9	6.6	6.1	6.0	5.9	6.2	7.1	8.1	8.8	9.5	9.8
0703112228	10.2	9.8	10.5	10.4	10.2	10.1	9.8	9.4	9.4	9.0	8.5	7.6
07041112280148550	6.6	6.4	6.0	5.8	5.8	5.9	6.0	6.8	8.3	8.9	9.3	9.7
0704112228	9.0	9.2	10.3	10.3	10.2	9.3	7.9	7.3	8.6	8.0	7.0	6.0
07051112280148560	5.7	5.5	5.5	5.4	5.4	5.4	6.6	7.6	8.0	9.3	9.7	10.2
0705112228	10.0	10.6	10.8	10.7	10.6	10.2	9.7	8.6	9.5	9.2	7.8	6.8
07061112280148570	6.4	6.0	6.1	5.8	5.9	5.9	6.4	7.3	7.7	8.7	9.2	9.9
0706112228	9.4	10.4	10.6	10.7	10.8	10.5	10.4	10.1	9.6	8.8	8.5	6.9

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07071112280148510	6.1	5.9	5.9	5.8	5.7	5.8	7.0	7.7	8.0	9.0	9.8	10.3
0707112228	10.5	10.7	10.8	11.0	11.1	11.0	10.2	10.2	9.9	9.7	8.4	6.8
07081112280148520	6.1	6.4	6.5	6.2	6.5	6.5	7.1	7.9	8.3	6.5	7.5	9.2
0708112228	9.6	9.8	9.9	10.8	10.8	10.8	10.1	10.2	9.6	9.2	8.1	7.3
07091112280148530	6.8	6.5	6.6	6.1	5.9	5.8	6.3	7.2	7.4	9.1	9.8	10.1
0709112228	10.5	10.7	10.8	10.6	10.3	10.0	9.6	9.3	8.9	7.5	6.6	6.1
07101112280148540	6.5	6.2	6.1	6.0	5.9	5.9	5.6	6.1	6.9	7.7	8.3	9.1
0710112228	9.1	9.3	9.4	9.3	8.7	8.2	8.0	7.5	7.7	7.0	7.5	6.5
07111112280148550	6.0	5.8	5.7	5.7	5.7	5.7	5.4	6.4	6.7	6.9	7.7	7.3
0711112228	8.1	8.0	7.8	8.2	8.5	8.8	8.4	7.4	7.4	6.8	7.6	6.6
07121112280148560	5.9	5.7	5.2	5.1	5.4	5.6	5.6	6.3	6.8	7.3	8.0	8.7
0712112228	8.7	9.2	9.7	9.8	9.9	9.6	9.8	9.4	8.8	8.4	7.4	6.5
07131112280148570	6.0	5.7	5.7	5.6	5.6	5.5	6.1	7.2	7.6	8.2	8.6	9.0
0713112228	8.7	9.0	9.3	9.7	9.8	9.8	9.7	9.1	8.5	8.4	7.0	6.0
07141112280148510	5.6	5.6	5.5	5.2	5.3	5.2	5.8	6.4	6.8	7.3	8.2	8.7
0714112228	8.4	8.8	9.0	9.3	9.8	9.8	9.6	8.5	8.8	8.2	6.6	5.7
07151112280148520	5.5	5.3	5.1	4.9	4.9	5.0	5.5	6.2	6.5	7.1	7.9	8.9
0715112228	8.3	9.0	9.6	9.8	9.8	9.7	9.6	8.8	9.0	8.4	7.2	6.4
07161112280148530	5.9	5.6	5.4	5.1	5.1	5.1	5.5	6.0	6.4	7.1	8.0	9.3
0716112228	9.5	9.8	10.1	10.3	10.4	10.2	9.9	9.4	9.6	8.9	7.7	6.7
07171112280148540	6.3	5.9	5.4	5.2	5.4	5.1	5.2	5.9	7.1	8.5	9.3	9.9
0717112228	10.1	10.2	10.3	10.2	10.0	9.7	9.5	9.1	9.1	8.3	7.5	6.7
07181112280148550	5.9	5.8	5.6	5.4	5.6	5.7	6.5	7.2	7.4	8.5	10.0	10.3
0718112228	10.5	10.6	10.6	10.2	10.0	9.5	9.3	8.8	9.1	8.8	7.5	6.6
07191112280148560	6.3	6.2	5.9	6.0	6.0	6.1	6.2	7.0	7.4	8.2	9.1	9.4
0719112228	9.6	9.9	10.2	10.3	10.2	10.1	9.9	9.5	9.3	9.1	8.5	7.5
07201112280148570	6.9	6.7	6.7	6.0	5.9	6.1	6.6	7.2	7.6	8.6	9.1	9.3
0720112228	9.5	9.7	10.0	10.1	10.0	9.8	8.9	8.4	8.6	8.0	7.3	6.2
07211112280148510	5.7	5.7	5.8	5.7	5.6	5.6	5.8	6.5	6.8	7.4	6.3	7.1
0721112228	9.3	9.5	9.8	10.0	10.1	10.1	9.8	8.8	9.0	8.3	7.5	6.6
07221112280148520	6.3	6.1	5.9	5.6	5.7	5.7	5.9	6.6	7.0	7.7	8.8	9.2
0722112228	9.3	9.6	9.8	10.0	10.1	10.0	9.7	8.9	8.8	8.2	7.7	7.0
07231112280148530	6.9	6.8	6.5	6.2	6.1	6.0	5.9	6.7	7.2	8.1	9.0	9.3
0723112228	9.5	9.9	10.0	9.9	9.6	9.4	8.6	7.8	8.3	8.2	7.5	7.0
07241112280148540	6.6	6.5	6.2	5.9	6.0	6.0	6.2	6.9	7.3	8.3	8.8	9.1
0724112228	9.3	9.5	9.7	9.8	9.8	9.6	9.4	9.1	9.0	8.6	7.4	6.5
07251112280148550	5.6	5.5	5.6	5.4	5.4	5.6	6.1	6.7	7.0	7.9	8.6	9.0
0725112228	9.2	9.4	9.3	9.3	9.3	8.7	8.6	8.5	8.7	8.0	7.2	6.1
07261112280148560	5.6	5.7	5.5	5.4	5.4	5.5	6.4	7.0	7.2	7.9	9.2	9.8
0726112228	10.0	10.2	10.3	10.4	10.5	10.6	10.5	9.5	9.7	9.1	7.9	6.3
07271112280148570	5.7	5.5	5.5	5.3	5.3	5.5	5.6	6.2	6.5	8.2	9.0	9.4
0727112228	9.7	9.8	10.0	10.2	10.2	10.2	10.0	9.7	9.6	9.0	8.4	7.3
07281112280148510	6.2	6.2	6.0	5.8	5.7	5.9	6.0	6.7	7.1	8.3	9.1	9.5
0728112228	9.7	9.9	10.1	10.2	10.2	10.2	9.8	9.6	9.4	9.2	8.5	7.6
07291112280148520	6.6	6.3	6.2	6.0	5.7	5.8	7.4	8.1	8.5	9.0	9.8	10.1
0729112228	9.5	9.5	9.7	9.8	10.0	10.0	9.9	9.7	10.1	9.8	8.6	7.9
07301112280148530	6.9	6.2	6.0	5.7	5.8	5.7	6.3	7.2	8.2	8.9	9.8	10.2
0730112228	10.0	10.1	10.0	10.0	10.0	9.7	9.3	9.2	9.5	8.9	7.9	7.2
07311112280148540	7.3	6.8	6.9	6.1	6.1	6.0	5.6	6.4	6.8	8.7	9.4	9.7

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0731112228	9.9	10.1	10.2	9.8	9.2	9.2	8.7	8.2	8.8	8.1	7.5	6.5
08011112280148550	5.8	5.5	5.6	5.5	5.5	5.6	6.0	6.7	7.1	8.5	9.1	9.3
0801112228	9.6	9.9	10.1	10.2	10.3	10.4	10.2	9.7	9.7	9.0	8.7	7.6
08021112280148560	6.4	6.3	6.1	5.9	6.0	6.1	6.8	6.8	7.3	8.9	9.6	9.9
0802112228	10.2	10.3	10.4	10.5	10.6	10.6	10.4	10.2	10.0	9.7	8.4	7.7
08031112280148570	7.1	6.3	5.8	5.6	5.6	5.8	6.2	6.9	7.5	8.3	8.9	9.0
0803112228	9.3	9.5	9.8	10.0	10.1	10.1	9.9	9.7	9.5	9.1	8.6	7.8
08041112280148510	7.1	6.8	6.3	6.0	6.1	6.3	7.1	7.7	8.4	9.3	9.9	10.2
0804112228	10.0	10.2	10.3	10.3	10.2	10.1	9.9	9.6	10.1	9.8	8.8	7.8
08051112280148520	6.9	6.8	6.5	6.3	6.2	6.1	6.5	6.6	8.2	8.9	9.4	9.7
0805112228	9.4	9.6	9.7	9.7	9.7	9.6	9.3	8.3	9.4	8.4	8.1	7.2
08061112280148530	6.4	6.2	5.9	5.6	5.5	5.6	5.4	6.0	6.8	7.8	8.6	9.2
0806112228	8.2	8.9	9.3	9.2	9.2	9.1	8.8	7.8	8.9	8.4	7.8	6.8
08071112280148540	6.9	6.6	6.2	5.9	5.9	5.9	5.7	6.4	7.2	8.0	9.4	9.6
0807112228	9.9	10.1	10.1	9.5	9.5	9.4	9.2	9.1	9.1	8.9	8.5	7.9
08081112280148550	6.5	6.3	6.0	5.7	5.8	5.8	6.2	6.7	7.9	8.7	9.1	9.3
0808112228	9.6	9.9	10.0	10.1	10.3	10.3	10.1	9.7	9.6	9.2	8.6	7.8
08091112280148560	6.6	6.5	6.1	6.0	6.0	6.2	6.5	7.6	8.0	8.5	9.2	9.5
0809112228	9.7	9.9	10.0	10.1	10.1	9.9	9.3	9.2	9.3	9.0	8.4	7.6
08101112280148570	6.4	6.0	5.7	5.7	5.8	6.1	6.8	7.5	7.9	8.7	9.2	9.4
0810112228	9.5	9.5	9.4	9.3	9.3	9.2	8.9	9.1	9.0	8.6	8.0	6.9
08111112280148510	6.4	5.4	5.2	5.0	5.0	5.0	5.4	7.2	7.7	8.4	9.0	9.2
0811112228	9.4	9.6	9.7	9.7	9.4	9.3	9.2	9.0	8.9	8.0	7.7	6.7
08121112280148520	6.3	6.2	5.9	5.9	5.9	5.9	6.2	6.7	7.0	7.8	8.5	8.7
0812112228	9.0	9.2	9.4	9.5	9.5	9.3	9.2	8.9	8.8	8.4	7.8	6.9
08131112280148530	6.3	6.2	6.0	5.8	5.8	5.4	5.3	5.6	7.1	7.8	8.3	9.0
0813112228	8.5	9.8	9.2	9.3	9.8	9.5	9.0	9.0	8.5	8.0	7.7	6.7
08141112280148540	6.5	6.1	5.9	5.8	5.6	5.6	5.3	5.7	6.6	7.6	8.9	9.3
0814112228	9.4	9.9	10.0	10.2	10.2	10.1	10.0	9.7	9.5	9.2	8.6	7.7
08151112280148550	6.5	6.2	6.0	5.8	5.9	6.0	6.3	6.9	7.6	8.5	9.0	9.2
0815112228	9.5	9.7	9.8	9.6	9.8	9.6	9.3	8.9	9.2	8.7	7.6	6.8
08161112280148560	6.2	6.1	5.8	5.7	5.7	5.8	5.8	6.6	7.2	8.3	9.0	9.3
0816112228	9.0	9.2	9.2	9.3	9.0	8.9	8.7	8.6	9.1	8.6	7.9	7.2
08171112280148570	6.4	6.1	5.6	5.4	5.6	5.7	6.4	7.0	7.5	8.5	9.2	9.5
0817112228	9.8	10.1	10.3	10.3	10.2	10.1	9.9	9.7	9.5	9.2	8.5	7.4
08181112280148510	7.0	6.6	6.3	6.0	6.1	6.4	6.6	7.2	7.7	8.6	9.5	9.8
0818112228	10.0	10.3	10.0	9.6	9.2	8.9	8.7	8.4	8.3	7.7	7.5	6.5
08191112280148520	5.7	5.8	5.5	5.8	5.7	5.7	5.9	6.8	7.3	8.1	8.1	8.5
0819112228	8.5	8.9	9.0	9.3	9.3	9.2	8.6	8.6	8.7	8.2	7.6	6.8
08201112280148530	6.3	6.1	5.6	5.5	5.5	5.6	5.2	6.0	6.5	7.4	8.6	9.2
0820112228	9.2	9.6	9.5	9.6	9.5	9.2	9.0	8.5	8.8	8.2	7.5	6.6
08211112280148540	6.3	6.0	5.7	5.6	5.7	6.0	5.1	5.7	6.7	7.7	8.6	9.2
0821112228	9.1	9.7	9.9	10.1	10.1	10.0	9.7	9.5	9.3	8.6	8.3	7.8
08221112280148550	6.8	6.5	6.1	5.8	5.8	6.2	5.7	6.3	7.0	8.1	9.0	9.6
0822112228	9.8	10.2	10.3	10.3	10.1	10.1	9.9	9.7	9.5	9.1	8.5	7.6
08231112280148560	7.1	6.7	6.5	6.2	6.2	6.2	6.4	7.1	7.9	8.6	9.2	9.6
0823112228	9.4	9.6	9.7	9.9	10.0	9.9	9.6	9.4	9.7	9.3	8.8	8.0
08241112280148570	7.0	7.0	6.5	6.3	6.3	6.5	7.1	7.9	8.5	9.4	10.0	10.3
0824112228	10.1	10.3	10.4	10.5	10.6	10.4	10.1	9.9	10.4	10.0	9.0	8.2

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08251112280148510	7.7	7.5	7.0	6.8	6.8	6.9	7.6	8.1	8.6	9.1	9.7	10.0
0825112228	10.4	10.7	10.9	11.0	10.9	10.7	10.6	10.4	10.2	9.8	8.7	8.0
08261112280148520	7.3	7.0	6.7	6.6	6.6	6.9	7.7	8.3	8.9	9.8	10.2	10.6
0826112228	10.3	10.5	10.4	10.5	10.4	10.2	10.1	9.8	10.1	9.8	8.8	8.1
08271112280148530	7.2	7.0	6.6	6.4	6.2	6.6	6.9	7.5	8.2	9.6	10.1	10.5
0827112228	10.3	10.4	10.5	10.4	10.1	9.8	9.7	9.5	9.9	9.4	8.6	7.5
08281112280148540	7.8	7.3	7.0	6.7	6.7	6.6	6.6	7.6	8.4	9.2	9.9	10.3
0828112228	9.8	10.0	10.2	10.3	10.4	10.3	10.9	10.6	10.3	9.9	8.9	8.3
08291112280148550	7.6	7.5	7.0	6.8	6.8	7.1	7.2	8.0	8.5	9.5	10.0	10.4
0829112228	10.2	10.3	10.5	10.4	10.5	10.5	10.2	10.1	10.4	9.9	9.3	8.4
08301112280148560	7.9	7.8	7.1	7.0	7.0	7.4	6.7	7.4	7.5	8.8	9.4	9.7
0830112228	10.1	10.4	10.5	10.6	10.7	10.6	10.3	10.2	9.9	9.5	9.4	8.5
08311112280148570	7.3	7.2	6.7	6.4	6.5	6.6	6.7	7.4	7.7	8.6	9.3	9.8
0831112228	10.2	10.5	10.7	10.7	10.4	10.1	9.8	9.6	9.2	8.7	8.0	7.3
09011112280148510	7.1	6.9	6.4	6.3	6.3	6.5	6.7	7.3	7.6	8.3	8.9	9.5
0901112228	9.8	10.0	10.1	10.3	10.3	10.2	9.6	9.5	9.7	9.1	8.4	7.6
09021112280148520	7.4	6.5	6.1	5.9	5.9	6.6	6.3	7.0	7.6	7.6	7.8	9.3
0902112228	8.7	9.1	9.4	9.7	9.7	9.3	8.8	8.5	9.3	8.7	8.3	7.5
09031112280148530	6.4	5.9	5.8	5.5	5.4	5.4	5.3	6.3	7.1	8.0	9.0	9.4
0903112228	8.7	8.8	9.2	9.6	9.6	9.3	8.9	8.7	9.2	8.7	8.0	7.1
09041112280148540	7.2	6.7	6.5	6.1	6.1	6.1	6.2	6.7	7.8	8.7	9.3	9.8
0904112228	10.6	10.8	10.8	10.9	10.8	10.5	10.4	10.2	10.0	9.0	8.6	8.2
09051112280148550	8.5	7.9	7.5	7.0	6.9	7.0	6.6	7.1	8.1	8.7	9.1	9.0
0905112228	8.4	8.7	8.7	8.2	8.1	7.9	7.8	7.8	7.9	8.2	7.7	7.0
09061112280148560	6.3	6.1	5.9	5.7	5.7	5.9	6.3	6.9	7.6	8.4	9.0	9.4
0906112228	9.1	9.4	9.3	9.3	9.3	9.1	8.5	8.3	9.0	8.8	8.1	7.2
09071112280148570	6.0	5.7	5.4	5.4	5.3	5.5	5.8	6.6	7.3	7.9	8.7	9.5
0907112228	9.8	10.0	10.3	10.4	10.4	10.3	10.0	9.5	9.5	8.5	7.6	6.3
09081112280148510	6.3	6.0	5.6	5.5	5.5	5.8	6.7	7.2	7.9	8.5	9.1	9.6
0908112228	10.2	10.5	10.7	10.8	10.8	10.7	10.2	9.8	9.5	8.8	7.3	6.7
09091112280148520	6.8	6.6	6.3	6.1	6.1	6.4	6.6	7.2	7.7	8.4	9.3	9.8
0909112228	9.4	9.5	9.4	9.2	8.5	8.0	7.5	7.0	7.3	6.8	6.5	6.0
09101112280148530	6.1	5.9	5.7	5.6	5.5	5.4	5.7	6.0	6.5	6.9	7.4	8.2
0910112228	7.8	8.5	8.7	8.7	8.0	7.3	6.8	6.5	6.8	6.4	6.2	5.7
09111112280148540	5.9	5.7	5.4	5.3	5.4	5.5	5.3	5.6	5.6	6.7	7.1	7.8
0911112228	8.2	8.3	8.6	8.4	8.3	8.4	8.0	7.4	7.2	6.9	6.8	6.3
09121112280148550	5.8	5.7	5.5	5.5	5.4	5.5	6.1	6.4	6.9	7.1	7.5	7.7
0912112228	6.9	7.1	7.2	7.6	7.6	7.3	7.1	6.7	7.3	6.6	6.1	5.7
09131112280148560	5.6	5.5	5.4	5.4	5.5	5.6	5.9	6.3	6.3	6.7	6.9	7.2
0913112228	7.0	7.3	7.7	7.9	7.7	7.6	7.1	6.7	7.2	6.6	5.8	5.3
09141112280148570	4.8	4.7	4.6	4.6	4.6	4.7	5.5	5.8	6.1	6.6	6.9	7.4
0914112228	6.6	7.1	7.2	7.2	7.1	7.1	6.7	6.4	6.6	6.4	5.4	5.0
09151112280148510	4.8	4.7	4.7	4.7	4.8	4.8	5.6	5.8	6.0	6.5	7.0	7.4
0915112228	7.8	8.2	8.2	7.9	7.9	8.0	7.8	7.5	7.2	6.7	5.6	5.1
09161112280148520	5.1	5.1	5.1	5.0	5.1	5.0	5.6	5.9	6.1	6.7	7.1	7.7
0916112228	8.1	8.3	8.7	9.1	8.8	8.6	8.1	7.7	7.3	6.8	5.7	5.3
09171112280148530	5.0	5.0	4.9	4.8	4.8	4.9	5.2	5.4	5.7	6.9	7.4	7.5
0917112228	7.7	8.5	8.8	8.8	8.7	8.6	8.1	7.5	6.9	6.4	5.9	5.4
09181112280148540	5.2	4.9	4.8	4.7	4.7	4.9	4.6	4.9	5.2	5.8	6.3	6.9

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0918112228	7.5	8.3	8.8	9.0	9.0	8.7	8.3	8.2	7.3	6.5	5.9	5.3
09191112280148550	5.1	5.0	4.8	4.8	4.7	4.8	5.2	5.6	6.1	6.6	7.2	7.8
0919112228	8.7	9.2	9.7	9.9	10.0	9.7	9.3	8.8	8.3	7.5	6.1	5.6
09201112280148560	5.2	5.2	5.1	5.1	5.0	5.1	5.7	6.0	6.4	7.0	7.7	8.3
0920112228	8.9	9.4	9.7	9.8	9.9	9.8	9.6	8.9	8.2	7.5	5.9	5.4
09211112280148570	5.2	5.2	5.0	5.1	5.1	5.2	5.7	6.2	6.6	7.1	7.6	8.3
0921112228	8.7	9.1	9.3	9.3	9.4	9.3	9.0	8.6	7.8	7.3	6.0	5.4
09221112280148510	5.2	5.1	5.0	5.0	5.0	5.1	5.8	6.2	6.4	7.0	7.8	8.2
0922112228	8.8	9.4	9.6	9.8	9.8	9.7	9.4	8.9	8.0	7.3	6.0	5.5
09231112280148520	5.4	5.2	4.9	4.9	5.0	5.1	5.8	6.0	6.5	7.1	7.6	8.4
0923112228	9.1	9.6	10.0	10.2	10.2	10.0	9.4	8.8	8.0	7.3	5.9	5.4
09241112280148530	5.4	5.2	5.1	5.0	5.0	5.0	5.5	5.7	6.0	6.5	7.3	8.0
0924112228	8.7	9.2	9.8	9.4	9.3	9.1	8.9	8.7	8.2	7.5	6.1	5.7
09251112280148540	5.7	5.4	5.2	5.1	5.0	5.0	4.8	5.2	6.0	6.8	7.4	8.2
0925112228	8.8	9.0	9.0	9.1	9.2	9.0	8.3	8.1	7.3	6.7	5.8	5.4
09261112280148550	5.0	4.9	4.8	4.8	4.8	4.9	5.7	6.0	6.4	6.7	7.3	7.9
0926112228	8.6	9.0	9.4	9.4	9.5	9.1	8.9	8.5	7.9	7.1	5.9	5.3
09271112280148560	5.2	5.0	4.9	4.8	4.9	5.1	5.7	5.9	6.1	7.1	7.6	7.9
0927112228	8.5	8.8	8.9	8.9	8.8	8.3	8.2	7.9	7.5	6.9	5.8	5.4
09281112280148570	5.1	4.9	4.9	4.8	4.7	4.9	5.6	6.0	6.1	6.4	6.9	7.7
0928112228	8.2	8.7	9.1	9.4	9.5	9.2	8.8	8.3	7.8	7.1	5.8	5.3
09291112280148510	5.2	5.1	4.9	4.8	4.9	5.1	5.8	6.1	6.1	6.5	7.4	7.9
0929112228	8.5	9.0	9.4	9.8	9.8	9.7	9.1	8.6	8.0	7.6	6.1	5.4
09301112280148520	5.3	5.3	5.2	5.1	5.1	5.1	5.8	6.1	6.6	7.0	7.4	8.1
0930112228	8.5	8.8	9.1	9.5	9.5	9.0	8.6	8.2	7.7	7.2	6.1	5.9
10011112280148500	5.6	5.4	5.1	5.1	5.1	5.2	5.7	6.3	6.7	7.3	7.9	8.1
1001112228	8.9	9.1	9.1	9.1	9.1	8.9	8.3	8.0	7.7	7.2	5.9	5.4
10021112280148500	5.2	5.1	4.9	4.8	4.8	4.7	4.9	5.2	5.7	6.5	7.2	8.0
1002112228	8.6	8.9	9.0	9.0	8.8	8.4	8.3	7.8	7.4	6.7	6.0	5.3
10031112280148500	5.2	5.0	5.0	4.8	4.9	5.1	6.0	6.3	6.9	7.4	7.8	8.0
1003112228	8.6	9.2	9.3	8.9	9.0	8.7	8.6	8.3	8.0	7.4	6.3	5.6
10041112280148500	5.0	4.9	4.8	4.8	4.9	5.2	5.4	5.8	6.0	6.4	6.7	7.1
1004112228	7.2	6.9	6.7	6.7	6.6	6.7	6.7	6.6	6.5	6.0	5.7	5.0
10051112280148500	4.9	4.7	4.6	4.7	4.7	4.9	5.3	5.4	5.7	5.7	5.8	5.6
1005112228	6.0	5.9	6.0	5.8	6.0	6.0	6.4	6.4	6.1	5.8	5.3	4.9
10061112280148500	4.8	4.5	4.5	4.6	4.6	4.8	5.1	5.3	5.3	5.6	5.3	5.4
1006112228	5.7	5.7	5.9	5.7	5.6	5.7	6.0	6.0	5.8	5.4	5.0	4.6
10071112280148500	4.7	4.6	4.8	4.6	4.7	5.0	5.5	5.7	5.6	5.7	5.8	5.8
1007112228	5.8	5.8	5.7	5.8	6.0	5.9	6.3	6.1	6.0	5.6	4.9	4.6
10081112280148500	4.3	4.5	4.2	4.1	4.2	4.3	5.0	5.4	5.2	5.5	5.5	5.5
1008112228	5.4	5.4	5.4	5.5	5.6	5.7	6.1	6.0	5.9	5.6	4.9	4.5
10091112280148500	4.5	4.3	4.3	4.3	4.4	4.5	4.5	4.8	4.9	5.0	5.1	5.1
1009112228	5.2	5.3	5.4	5.4	5.4	5.7	5.9	5.8	5.9	5.1	4.9	4.8
10101112280148500	4.5	4.3	4.3	4.2	4.3	4.4	5.1	5.4	5.5	5.6	5.8	6.1
1010112228	6.3	6.2	6.3	6.4	6.6	6.3	6.9	6.4	6.5	6.0	5.0	4.8
10111112280148500	4.6	4.5	4.5	4.6	4.5	4.6	5.4	5.6	5.7	5.9	5.7	5.9
1011112228	6.1	6.2	6.3	6.6	6.8	6.9	7.1	7.0	6.6	6.2	5.3	4.9
10121112280148500	4.6	4.6	4.5	4.5	4.6	4.8	5.2	5.4	5.6	5.9	5.8	6.2
1012112228	6.6	6.9	7.1	7.6	7.7	7.6	7.7	7.4	7.1	6.4	5.4	5.0

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10131112280148500	4.7	4.7	4.6	4.6	4.6	4.8	5.5	5.7	5.7	6.0	6.3	6.8
1013112228	7.4	7.7	8.0	8.4	8.5	8.4	8.5	8.0	7.5	6.7	5.7	5.1
10141112280148500	4.9	4.8	4.8	4.6	4.7	4.8	5.5	5.6	5.8	6.2	6.5	6.8
1014112228	7.3	7.8	8.1	8.5	8.6	8.4	8.2	7.8	7.1	6.5	5.5	5.1
10151112280148500	4.8	4.8	4.7	4.5	4.5	4.6	5.0	5.2	6.0	5.9	6.2	6.8
1015112228	7.5	8.0	8.3	8.5	8.5	8.3	8.3	7.7	7.1	6.6	5.5	5.3
10161112280148500	5.1	4.9	4.7	4.6	4.7	4.4	4.5	5.1	5.4	5.8	6.4	6.9
1016112228	7.6	8.1	8.6	8.6	8.7	8.4	8.2	7.9	7.4	6.8	6.1	5.5
10171112280148500	5.0	4.8	4.6	4.4	4.6	4.9	5.4	5.7	5.8	6.3	6.3	6.5
1017112228	6.9	7.1	7.4	7.5	7.5	7.5	7.5	7.1	6.8	6.5	5.9	5.4
10181112280148500	4.7	4.7	4.6	4.5	4.5	4.7	5.1	5.5	5.8	5.9	6.3	6.5
1018112228	6.8	7.0	7.3	7.4	7.5	7.4	7.4	7.1	6.8	6.3	5.5	4.9
10191112280148500	4.5	4.4	4.4	4.3	4.4	4.7	5.7	5.8	6.0	6.1	6.1	6.3
1019112228	6.8	7.0	7.2	7.5	7.6	7.5	7.4	7.1	6.8	6.4	5.5	4.5
10201112280148500	4.3	4.2	4.2	4.1	4.1	4.8	5.8	5.8	5.7	6.0	6.0	6.3
1020112228	6.7	7.0	7.1	7.4	7.3	7.1	7.3	6.9	6.6	6.1	5.2	4.8
10211112280148500	4.6	4.4	4.4	4.4	4.4	4.7	5.7	5.7	5.9	6.0	5.9	6.2
1021112228	6.8	7.1	7.3	7.4	7.4	7.3	7.2	7.0	6.7	6.4	5.5	5.0
10221112280148500	4.9	4.6	4.4	4.4	4.4	4.5	5.2	5.4	5.5	5.8	6.3	6.8
1022112228	7.3	7.6	7.8	7.9	7.9	7.8	7.7	7.2	6.8	6.3	4.9	4.8
10231112280148500	4.9	4.9	4.8	4.5	4.5	4.6	4.8	4.9	5.4	5.8	6.2	6.6
1023112228	7.2	7.7	8.3	8.4	8.6	8.3	8.6	8.4	7.8	7.4	5.9	5.2
10241112280148500	4.8	4.4	4.3	4.4	4.5	4.7	5.3	5.5	5.9	6.1	6.2	6.5
1024112228	6.9	7.2	7.1	7.3	7.2	7.1	7.0	6.8	6.7	6.4	5.0	4.7
10251112280148500	4.6	4.4	4.4	4.3	4.4	4.6	4.8	4.9	4.9	5.1	5.2	5.4
1025112228	5.6	5.8	5.9	6.0	5.9	5.9	6.1	5.8	5.6	5.3	5.0	4.8
10261112280148500	3.7	3.4	3.3	3.1	3.4	3.8	4.8	4.9	4.9	5.0	5.1	5.2
1026112228	5.3	5.4	5.2	5.2	5.3	5.3	5.5	5.4	5.1	5.0	4.1	3.6
10271112280148500	3.9	3.6	3.6	3.7	3.8	4.3	5.0	5.2	5.2	5.4	5.1	4.9
1027112228	5.0	5.1	5.2	5.2	5.3	5.4	6.0	5.8	5.5	5.3	5.1	4.7
10281112280148500	4.5	4.3	4.3	4.2	4.3	4.7	5.1	5.3	5.3	5.4	5.2	5.3
1028112228	5.4	5.4	5.5	5.6	5.7	5.7	6.0	5.8	5.5	5.4	5.1	4.7
10291112280148500	4.5	4.4	4.3	4.1	4.2	4.3	4.7	5.0	5.3	5.4	5.5	5.6
1029112228	5.6	5.7	5.9	6.0	6.1	6.2	6.5	6.2	5.9	5.5	5.1	4.8
10301112280148500	4.5	4.2	4.2	4.2	4.2	4.3	4.5	4.6	4.9	5.2	5.3	5.2
1030112228	5.4	5.7	5.9	6.1	6.4	6.4	6.8	6.6	6.3	5.7	5.0	4.7
10311112280148500	4.4	4.3	4.2	4.0	4.4	4.9	5.3	5.4	5.7	5.7	5.6	5.7
1031112228	5.7	6.0	6.4	6.5	6.6	6.6	6.9	6.6	6.1	5.6	5.1	4.8
11011112280148500	4.5	4.4	4.3	4.3	4.5	4.8	5.4	5.4	5.5	5.5	5.6	5.6
1101112228	5.9	6.0	6.1	6.3	6.3	6.1	6.2	5.8	6.1	5.7	5.3	4.8
11021112280148500	4.6	4.4	4.2	4.3	4.5	4.7	5.3	5.3	5.4	5.4	5.3	5.3
1102112228	5.4	5.4	5.6	5.6	5.6	5.7	6.0	5.8	5.9	5.5	4.9	4.5
11031112280148500	4.3	4.2	4.2	4.3	4.4	4.7	5.4	5.5	5.4	5.5	5.4	5.4
1103112228	5.4	5.4	5.4	5.5	5.5	5.8	6.2	6.2	5.9	5.5	5.0	4.6
11041112280148500	4.3	4.2	4.2	4.2	4.3	4.6	5.3	5.5	5.5	5.4	5.3	5.3
1104112228	5.4	5.3	5.4	5.4	5.7	5.9	6.3	6.1	5.9	5.4	5.1	4.8
11051112280148500	4.5	4.4	4.2	4.2	4.2	4.5	4.8	5.0	5.2	5.4	5.6	5.6
1105112228	5.3	5.3	5.2	5.1	5.2	5.5	5.8	5.9	5.9	5.3	5.1	4.7
11061112280148500	4.6	4.4	4.4	4.3	4.4	4.6	4.9	5.2	5.5	5.6	5.6	5.5



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1106112228	5.3	5.3	5.3	5.3	5.5	5.9	6.4	6.3	6.2	5.6	5.2	4.8
11071112280148500	4.5	4.4	4.4	4.3	4.5	5.0	5.7	6.1	7.0	6.6	6.4	6.4
1107112228	6.0	5.8	5.6	5.6	5.7	6.0	7.1	6.9	6.7	7.0	6.3	5.4
11081112280148500	5.1	5.0	4.9	5.0	5.4	6.1	7.1	7.4	6.9	6.8	6.4	6.0
1108112228	5.7	5.3	5.2	5.3	5.4	5.9	7.6	7.5	6.8	6.2	6.5	5.9
11091112280148500	5.6	4.8	4.8	4.8	5.1	5.6	6.7	7.1	6.8	6.2	5.9	5.5
1109112228	5.4	5.3	5.2	5.3	5.4	7.0	7.6	7.3	6.5	6.0	5.3	4.9
11101112280148500	4.7	4.7	4.6	4.7	4.9	5.5	6.4	6.3	5.9	5.6	5.4	5.4
1110112228	5.3	5.2	5.2	5.2	5.4	6.0	6.4	6.1	5.2	5.0	4.6	4.4
11111112280148500	4.1	4.0	3.9	3.9	4.2	4.5	4.8	4.9	5.0	4.9	4.8	4.7
1111112228	4.6	4.3	4.2	4.2	4.3	4.6	5.0	5.0	5.0	4.9	4.6	4.1
11121112280148500	4.1	4.0	3.9	4.0	4.1	4.2	4.6	4.8	5.0	4.9	4.9	4.8
1112112228	4.7	4.4	4.3	4.3	4.4	4.6	4.9	4.8	5.0	4.6	4.1	3.8
11131112280148500	3.8	3.5	3.5	3.4	3.5	3.7	4.1	4.4	4.7	4.8	4.9	4.5
1113112228	4.6	4.3	4.1	4.1	4.3	4.8	5.0	5.0	5.0	4.9	4.3	3.6
11141112280148500	3.5	3.6	3.6	3.6	3.9	4.5	5.2	5.2	5.4	4.9	4.9	5.0
1114112228	4.9	4.6	4.5	4.5	4.6	5.3	5.6	5.7	5.7	5.4	5.1	4.9
11151112280148500	4.6	4.4	4.2	4.4	4.6	5.1	5.9	6.0	5.8	5.6	5.3	5.2
1115112228	5.2	5.1	5.0	5.2	5.4	5.8	6.3	6.2	6.1	5.6	5.1	4.7
11161112280148500	4.5	4.4	4.4	4.4	4.5	5.2	5.9	5.9	5.8	5.5	5.4	5.3
1116112228	5.2	5.2	5.1	5.2	6.6	5.8	6.3	6.6	5.5	5.1	4.8	1.9
11171112280148500	1.8	1.8	1.7	1.7	1.9	2.1	2.4	3.1	2.9	2.8	2.7	2.6
1117112228	3.2	3.7	3.7	4.1	4.3	4.6	5.2	5.2	5.1	4.8	4.4	4.3
11181112280148500	3.9	3.9	4.0	4.0	4.1	4.5	4.9	5.0	4.9	4.7	4.7	4.6
1118112228	4.5	4.3	4.1	4.1	4.3	4.6	5.1	5.0	4.8	4.6	4.2	4.2
11191112280148500	4.1	4.1	4.0	3.9	4.3	4.4	4.8	5.1	5.3	5.2	5.2	5.1
1119112228	5.0	5.1	5.1	5.1	5.2	5.7	6.1	6.1	5.7	5.6	5.2	4.7
11201112280148500	4.5	4.4	4.3	4.3	4.4	4.5	4.9	5.1	5.5	5.5	5.4	5.4
1120112228	5.3	5.2	5.1	5.2	5.4	5.9	6.3	7.0	6.9	5.6	5.1	4.8
11211112280148500	4.5	4.4	4.3	4.2	4.4	4.7	5.6	5.9	5.8	5.6	5.5	5.4
1121112228	5.4	5.2	5.1	5.2	5.3	6.0	6.4	6.4	6.3	5.8	5.3	4.8
11221112280148500	4.6	4.5	4.5	4.5	4.9	5.4	6.2	6.5	6.2	6.0	5.6	5.5
1122112228	5.4	5.1	5.1	5.1	5.4	5.9	6.3	6.2	6.1	5.8	5.4	4.9
11231112280148500	4.6	4.6	4.6	4.6	4.9	5.5	6.3	6.5	5.8	5.8	5.7	5.3
1123112228	5.4	5.2	5.1	5.2	5.2	5.6	6.2	5.9	5.9	5.7	5.3	4.9
11241112280148500	4.7	4.5	4.4	4.4	4.5	4.8	5.2	5.6	5.7	6.0	6.2	6.1
1124112228	6.0	5.6	5.5	5.3	5.1	5.3	5.6	5.5	5.4	5.2	4.8	4.6
11251112280148500	4.4	4.4	4.3	4.3	4.5	4.7	5.0	5.4	5.5	5.5	5.4	5.3
1125112228	5.2	5.1	5.0	5.1	5.1	5.8	5.9	5.9	5.9	5.6	5.1	4.8
11261112280148500	4.7	4.6	4.6	4.6	4.8	5.1	5.4	5.6	5.6	5.5	5.3	5.4
1126112228	5.2	5.1	5.0	5.0	5.0	5.6	5.9	6.1	5.9	5.6	5.3	4.9
11271112280148500	4.7	4.5	4.4	4.5	4.6	4.9	5.2	5.6	5.4	5.5	5.4	5.3
1127112228	5.2	5.1	5.0	5.1	5.2	5.8	6.2	6.1	6.1	5.6	5.3	4.8
11281112280148500	4.8	4.6	4.9	4.8	5.0	5.5	6.2	5.4	5.1	4.9	5.8	5.7
1128112228	5.2	5.2	5.2	5.1	5.4	6.1	6.5	6.4	6.3	5.9	5.3	4.9
11291112280148500	4.5	4.4	4.4	4.4	4.6	5.2	5.9	6.0	6.1	5.7	5.5	5.3
1129112228	5.2	5.3	5.3	5.3	5.3	5.9	7.3	6.3	6.3	6.1	6.0	5.2
11301112280148500	4.7	4.6	4.5	4.6	4.6	5.1	5.6	6.5	6.2	5.8	5.5	5.4
1130112228	5.3	5.2	5.2	5.1	5.2	5.8	6.5	6.4	6.2	5.8	5.3	4.8

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12011112280148500	4.5	4.5	4.5	4.5	4.6	5.2	5.9	6.0	5.7	5.7	5.6	5.6
1201112228	5.7	5.7	5.7	5.6	5.9	6.5	7.1	7.1	6.7	6.3	5.7	5.2
12021112280148500	4.9	4.5	4.5	4.5	4.8	5.1	6.0	6.3	6.1	6.2	6.2	6.1
1202112228	5.9	5.7	5.6	5.7	5.9	6.6	6.9	6.9	6.6	6.3	5.8	5.1
12031112280148500	5.0	4.8	4.7	4.6	4.7	5.0	5.5	6.3	6.4	6.3	6.2	6.1
1203112228	5.9	6.0	6.0	6.0	6.0	6.8	7.1	6.7	6.6	6.5	6.1	5.2
12041112280148500	5.0	5.2	5.2	5.2	5.4	5.7	6.1	6.5	6.7	6.7	6.8	6.8
1204112228	6.6	6.1	5.9	5.9	6.1	6.8	7.0	7.1	7.2	7.0	6.4	6.0
12051112280148500	5.3	5.1	5.2	5.2	5.4	6.1	7.3	7.5	7.2	6.7	6.8	6.3
1205112228	6.1	5.9	5.8	6.0	6.2	7.0	7.7	8.0	7.8	7.5	7.1	6.6
12061112280148500	6.0	5.9	5.8	6.0	6.3	7.0	7.0	6.9	6.8	6.9	6.3	6.0
1206112228	5.9	5.7	5.5	5.6	5.9	6.7	7.1	7.1	7.4	7.0	6.3	6.2
12071112280148500	6.0	5.9	6.0	6.1	6.5	7.1	7.8	8.2	7.9	7.0	7.0	6.4
1207112228	6.2	5.9	5.4	5.4	5.6	6.9	7.6	7.6	7.7	7.0	6.3	5.9
12081112280148500	5.8	5.8	5.9	6.0	6.3	7.0	7.3	7.2	6.9	6.5	6.2	6.0
1208112228	5.8	5.5	5.4	5.1	5.4	6.7	7.3	7.4	7.4	6.9	6.5	5.8
12091112280148500	5.8	5.7	5.5	5.7	6.0	7.1	7.8	7.9	7.5	7.1	6.4	5.9
1209112228	5.5	5.2	5.2	5.2	5.7	6.5	7.2	7.0	6.9	6.6	6.2	5.8
12101112280148500	5.6	5.5	5.3	5.4	5.5	5.8	6.4	6.8	6.8	6.6	6.4	6.2
1210112228	5.8	5.6	5.5	5.3	5.4	6.2	6.8	6.7	6.7	6.5	6.0	5.5
12111112280148500	5.4	5.3	5.2	5.3	5.5	5.8	6.3	6.8	6.7	6.4	6.1	5.8
1211112228	5.7	5.5	5.4	5.4	5.6	6.4	7.0	7.0	6.9	6.5	5.9	5.3
12121112280148500	5.0	4.9	4.9	4.8	5.0	5.6	6.4	6.7	6.7	6.6	6.5	6.4
1212112228	6.5	6.6	6.5	4.8	6.4	6.9	7.8	7.8	7.6	6.9	6.1	5.5
12131112280148500	5.2	5.0	4.9	4.9	5.0	5.7	6.5	6.8	6.7	6.6	6.2	6.1
1213112228	6.2	6.2	6.3	6.3	6.5	7.3	7.5	7.4	7.3	6.8	6.2	5.6
12141112280148500	5.2	5.1	5.1	5.2	5.6	6.2	7.0	7.3	7.1	6.8	6.5	6.2
1214112228	6.0	5.8	5.8	5.9	6.1	6.9	7.4	7.4	7.4	7.0	6.3	5.8
12151112280148500	5.6	5.5	5.5	5.7	6.1	6.8	7.4	7.7	7.3	6.9	6.5	6.1
1215112228	5.9	5.7	5.6	5.6	5.9	6.4	7.2	7.3	7.4	7.0	6.3	5.8
12161112280148500	5.8	5.6	5.6	5.7	5.9	6.6	7.3	7.4	7.1	6.7	6.4	6.1
1216112228	6.2	6.0	5.5	5.5	5.8	7.0	7.3	7.3	6.8	6.4	6.4	5.9
12171112280148500	5.7	5.5	5.4	5.4	5.5	5.8	5.7	6.2	6.2	6.6	6.4	6.1
1217112228	6.0	5.9	5.9	5.9	6.0	6.8	7.1	6.8	6.5	6.1	5.8	5.5
12181112280148500	5.1	4.9	4.9	4.8	4.9	5.2	5.6	6.0	6.1	6.3	6.0	5.8
1218112228	5.6	5.7	5.7	5.8	6.1	6.9	7.3	7.3	7.3	7.0	6.4	5.8
12191112280148500	5.5	5.2	5.1	5.1	5.4	6.1	6.8	7.3	7.3	6.9	6.7	6.5
1219112228	6.2	6.1	6.0	5.8	6.0	7.2	7.6	7.5	7.4	7.0	6.3	5.6
12201112280148500	5.3	5.2	5.2	5.2	5.5	5.9	6.6	7.0	6.9	6.6	6.3	6.1
1220112228	5.9	5.8	5.7	5.8	6.2	6.9	7.3	7.3	7.2	6.9	6.2	5.7
12211112280148500	5.4	5.5	5.6	5.7	6.0	6.6	7.3	7.4	7.1	6.8	6.6	6.3
1221112228	6.1	5.9	5.8	5.8	6.0	6.9	7.4	7.3	7.3	7.0	6.4	5.9
12221112280148500	5.7	5.6	5.7	5.7	5.9	6.4	7.0	7.3	7.1	6.8	6.6	6.3
1222112228	6.3	6.2	6.0	6.0	6.3	7.2	7.7	7.7	7.8	7.4	6.8	6.4
12231112280148500	6.1	6.0	5.9	5.8	6.1	6.5	7.6	7.8	7.7	7.7	7.7	7.2
1223112228	6.7	6.4	6.4	6.2	6.2	7.1	7.7	7.7	7.8	7.5	7.1	6.1
12241112280148500	6.5	6.5	6.5	6.6	6.7	7.1	7.3	7.6	7.6	7.5	7.3	7.0
1224112228	6.7	6.4	6.2	6.1	6.1	6.5	6.9	7.0	7.2	6.9	6.5	5.8
12251112280148500	6.2	6.0	5.9	6.0	6.3	6.6	7.0	7.5	7.4	7.2	6.5	6.1

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1225112228	6.0	5.7	5.5	5.3	5.4	6.1	6.7	6.5	6.6	6.6	6.3	5.5
12261112280148500	6.0	5.8	5.8	5.4	5.6	6.7	7.3	7.5	7.4	7.0	6.8	6.5
1226112228	6.3	5.9	5.7	5.6	5.8	6.5	7.2	7.2	7.4	6.8	6.3	5.9
12271112280148500	5.6	5.5	5.5	5.7	5.9	6.4	7.6	8.0	7.9	7.3	7.0	6.6
1227112228	6.3	5.8	5.7	5.6	5.7	6.5	7.3	7.3	7.3	6.9	6.4	5.7
12281112280148500	5.6	5.5	5.6	5.7	6.0	6.6	7.4	7.6	7.3	6.9	6.3	5.9
1228112228	5.7	5.5	5.4	5.3	5.6	6.2	7.1	7.1	7.0	6.7	6.1	5.7
12291112280148500	5.6	5.6	5.6	5.7	6.0	6.4	7.0	7.3	7.0	6.6	6.2	6.1
1229112228	6.0	5.7	5.5	5.4	5.3	6.2	6.9	6.7	6.4	6.4	5.9	5.6
12301112280148500	5.4	5.1	4.9	5.0	5.1	5.3	5.8	6.6	6.7	6.5	6.4	5.8
1230112228	5.6	5.4	5.3	5.3	5.4	6.2	6.8	6.6	6.4	6.2	5.7	5.3
12311112280148500	5.1	5.0	4.9	5.0	5.2	5.7	6.1	6.7	6.5	6.1	5.9	5.9
1231112228	5.8	5.7	5.6	5.5	5.6	6.4	6.8	6.5	6.4	6.0	5.6	5.2

## 2011 Integrated Resource Planning Actual Data Filing

### R14-2-703.    Load-serving Entity Reporting Requirements

A.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of demand-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:

1. Hourly demand for the previous calendar year, disaggregated by:
  - d. Other disposition of energy, such as energy furnished without charge and energy used by the load-serving entity;

---

### 2011 Monthly Energy Used for Station Operation – MWh

Month	Station Energy
January	24,565.55
February	20,585.78
March	17,121.83
April	15,694.45
May	20,405.71
June	23,793.66
July	27,907.34
August	28,758.16
September	25,742.44
October	23,327.40
November	20,271.10
December	22,459.60
<b>Annual</b>	<b>270,633.03</b>

## 2011 Integrated Resource Planning Actual Data Filing

### R14-2-703.    Load-serving Entity Reporting Requirements

**A.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of demand-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

2. Coincident peak demand (megawatts) and energy consumption (megawatt-hours) by month for the previous 10 years, disaggregated by customer class;

---

AEPCO does not track coincident peak demand (megawatts) separately for individual customer classes. AEPCO's total firm coincidental peak demand (megawatts) is shown in the table below.

**Total Firm Coincidental Peak Demand – MW**

Month	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Jan	501	382	392	407	415	458	435	413	415	355
Feb	495	387	395	396	397	432	436	414	415	393
Mar	468	385	387	383	408	430	415	387	400	300
Apr	503	390	380	400	419	442	423	455	381	232
May	591	482	488	518	525	531	493	573	452	372
Jun	527	522	512	569	613	624	565	627	549	437
Jul	547	549	553	608	623	657	564	724	553	467
Aug	534	545	559	574	575	643	567	701	556	462
Sep	508	497	535	538	531	611	538	614	522	460
Oct	388	452	424	485	491	496	467	483	462	391
Nov	343	363	397	409	434	419	393	392	385	323
Dec	384	394	483	415	448	461	426	417	407	346

## 2011 Integrated Resource Planning Actual Data Filing

### Total Energy Served – MWh

Month	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Jan	276101	238420	237394	256301	266470	288033	282716	240318	243220	186898
Feb	263719	221538	220292	228799	237919	248930	261017	209490	223247	160627
Mar	298960	242926	236239	254022	268679	277409	273957	216062	209300	131534
Apr	279649	235991	214790	254496	266747	273905	268390	198376	201994	125801
May	297843	256505	264297	279433	303026	306770	287687	273022	206492	175310
Jun	262529	271476	273001	301849	330848	337187	315939	261053	257748	222136
Jul	284787	313624	317715	346040	350902	364431	329605	342696	257492	251244
Aug	279352	309289	303949	320016	327156	352825	328042	316644	266470	259422
Sep	244326	269807	260063	292169	288662	317315	294168	268132	247253	219281
Oct	216073	244955	231478	259413	264387	282760	269114	224123	195806	182930
Nov	201734	221361	223121	230996	235500	257255	234854	190179	181819	156281
Dec	229574	237364	253461	261814	280721	287624	262961	242069	191836	195910
Annual	3134647	3063256	3035800	3285348	3421017	3594444	3408450	2982164	2682677	2267373

Note – Mohave Electric Cooperative, Inc., Sulphur Springs Valley Electric Cooperative, Inc., and Trico Electric Cooperative, Inc. are Partial Requirements Members of AEPCO. As such, AEPCO only serves a portion of their energy needs.

## **2011 Integrated Resource Planning Actual Data Filing**

### **Residential Class - Energy Served – MWh**

**[Begin Confidential Information]**

**[End Confidential Information]**

\*AEPCO does not serve residential customers. However, it did request that its members provide class information and the data provided above has been supplied to AEPCO by AEPCO's member distribution cooperatives. At the time of this filing, however, AEPCO was unable to obtain the monthly data from all of its member for calendar 2011.

This data represents AEPCO's Class A Member aggregate data by a customer class. The addition of the energy served by various customer classes will not yield the total energy shown on page 36 because that total includes AEPCO's other firm and contingent sales.

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## **2011 Integrated Resource Planning Actual Data Filing**

### **Irrigation Class - Energy Served – MWh**

**[Begin Confidential Information]**

**[End Confidential Information]**

\*AEPCO does not serve irrigation customers. The data provided above has been supplied to AEPCO by AEPCO's member distribution cooperatives. At the time of this filing, however, AEPCO was unable to obtain the monthly data from all of its members for calendar 2011.

This data represents AEPCO's Class A Member aggregate data by a customer class. The addition of the energy served by various customer classes will not yield the total energy shown on page 36 because that total includes AEPCO's other firm and contingent sales.

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## **2011 Integrated Resource Planning Actual Data Filing**

### **Small Commercial Class (< 350 kW) - Energy Served – MWh**

**[Begin Confidential Information]**

**[End Confidential Information]**

\*AEPCO does not serve small commercial customers. The data provided above has been supplied to AEPCO by AEPCO's member distribution cooperatives. At the time of this filing, however, AEPCO was unable to obtain the monthly data from all of its members for calendar 2011.

This data represents AEPCO's Class A Member aggregate data by a customer class. The addition of the energy served by various customer classes will not yield the total energy shown on page 36 because that total includes AEPCO's other firm and contingent sales.

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## **2011 Integrated Resource Planning Actual Data Filing**

### **Large Commercial Class (> 350 kW) - Energy Served – MWh**

**[Begin Confidential Information]**

**[End Confidential Information]**

\*AEPCO does not serve large commercial customers. The data provided above has been supplied to AEPCO by AEPCO's member distribution cooperatives. At the time of this filing, however, AEPCO was unable to obtain the monthly data from all of its members for calendar 2011.

This data represents AEPCO's Class A Member aggregate data by a customer class. The addition of the energy served by various customer classes will not yield the total energy shown on page 36 because that total includes AEPCO's other firm and contingent sales.

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## **2011 Integrated Resource Planning Actual Data Filing**

### **Special Contracts – Other Sales - Energy Served – MWh**

**[Begin Confidential Information]**

**[End Confidential Information]**

\*The data provided above has been supplied to AEPCO by AEPCO's member distribution cooperatives. At the time of this filing, however, AEPCO was unable to obtain the monthly data for calendar 2011 from all of its members.

The above data represents AEPCO's Class A Member aggregate data by a customer class. The addition of the energy served by various customer classes will not yield the total energy shown on page 36 because that total includes AEPCO's other firm and contingent sales.

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## **2011 Integrated Resource Planning Actual Data Filing**

### **Sales for Resale - Energy Served – MWh**

**[Begin Confidential Information]**

**[End Confidential Information]**

\*The data provided above has been supplied to AEPCO by AEPCO's member distribution cooperatives. At the time of this filing, however, AEPCO was unable to obtain the monthly data from all of its members for calendar 2011.

The above data represents AEPCO's Class A Member aggregate data by a customer class. The addition of the energy served by various customer classes will not yield the total energy shown on page 36 because that total includes AEPCO's other firm and contingent sales.

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## **2011 Integrated Resource Planning Actual Data Filing**

### **Highway Lighting Class - Energy Served – MWh**

**[Begin Confidential Information]**

**[End Confidential Information]**

\*The data provided above has been supplied to AEPCO by AEPCO's member distribution cooperatives. At the time of this filing, however, AEPCO was unable to obtain the monthly data from all of its members for calendar 2011.

The above data represents AEPCO's Class A Member aggregate data by a customer class. The addition of the energy served by various customer classes will not yield the total energy shown on page 36 because that total includes AEPCO's other firm and contingent sales.

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703.   Load-serving Entity Reporting Requirements**

**A.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of demand-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

- 3. Number of customers by customer class for each of the previous 10 years; and**

---

### **Number of Customers by Customer Class**

**[Begin Confidential Information]**

**[End Confidential Information]**

\*The data provided above has been supplied to AEPCO by AEPCO's member distribution cooperatives. At the time of this filing, however, AEPCO was unable to obtain the data from all of its members for calendar 2011.

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**A.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of demand-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

4. Reduction in load (kilowatt and kilowatt-hours) in the previous calendar year due to existing demand management measures, by type of demand management measure.

---

AEPCO is unique among entities covered by the IRP Rules in that it supplies power only at wholesale predominately to its Class A Distribution Cooperative Members and, therefore, serves no demand-side role in the integrated resource planning process. The Class A Member Distribution Cooperatives do not report this data separately.

## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

- 1. For each generating unit and purchased power contract for the previous calendar year:**
  - a. In-service date and book life or contract period;**

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**[Begin Confidential Information]**

**[End Confidential Information]**

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## 2011 Integrated Resource Planning Actual Data Filing

### R14-2-703.    Load-serving Entity Reporting Requirements

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. For each generating unit and purchased power contract for the previous calendar year:
  - b. Type of generating unit or contract;

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### Type of Generating Unit

Unit/Contract	Type of Unit/Contract
Gas Turbine 1	Peaking
Steam Turbine 1	Intermediate
Gas Turbine 2	Peaking
Gas Turbine 3	Peaking
Gas Turbine 4	Peaking
Steam Turbine 2	Load Following
Steam Turbine 3	Load Following
SCL-IP	Firm Hydro
Parker-Davis	Firm Hydro
South Point	Unit Contingent PPA
Griffith	Unit Contingent PPA

## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. For each generating unit and purchased power contract for the previous calendar year:
  - c. The load-serving entity's share of the generating unit's capacity, or of capacity under the contract, in megawatts;

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**[Begin Confidential Information]**

**2011 Maximum Capacity – MW**

**[End Confidential Information]**

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. For each generating unit and purchased power contract for the previous calendar year:
  - d. Maximum generating unit or contract capacity, by hour, day, or month, if such capacity varies during the year;

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**[Begin Confidential Information]**

**[End Confidential Information]**

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. For each generating unit and purchased power contract for the previous calendar year:
  - e. Annual capacity factor (generating units only);

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**[Begin Confidential Information]**

**[End Confidential Information]**

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. For each generating unit and purchased power contract for the previous calendar year:
  - f. Average heat rate of generating units and, if available, heat rates at selected output levels;

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**[Begin Confidential Information]**

**[End Confidential Information]**

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. For each generating unit and purchased power contract for the previous calendar year:
  - g. Average fuel cost for generating units, in dollars per million Btu for each type of fuel;

---

### **2011 Variable Fuel Data**

**[Begin Confidential Information]**

**[End Confidential Information]**

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. For each generating unit and purchased power contract for the previous calendar year:
  - h. Other variable operating and maintenance costs for generating units, in dollars per megawatt hour;

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**[Begin Confidential Information]**

**[End Confidential Information]**

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. For each generating unit and purchased power contract for the previous calendar year:
  - i. Purchased power energy costs for long-term contracts, in dollars per megawatt-hour;

---

### **2011 Purchased Power Energy Costs - \$/MWh**

**[Begin Confidential Information]**

**[End Confidential Information]**

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. For each generating unit and purchased power contract for the previous calendar year:
  - j. Fixed operating and maintenance costs of generating units, in dollars per megawatt;

---

### **2011 Fixed Operating & Maintenance Costs**

**[Begin Confidential Information]**

**[End Confidential Information]**

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

**1. For each generating unit and purchased power contract for the previous calendar year:**

**k. Demand charges for purchased power;**

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### **2011 Purchased Power Demand Costs - \$/kw-month**

**[Begin Confidential Information]**

**[End Confidential Information]**

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## 2011 Integrated Resource Planning Actual Data Filing

### R14-2-703.    Load-serving Entity Reporting Requirements

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. For each generating unit and purchased power contract for the previous calendar year:

1. Fuel type for each generating unit;

---

### 2011 Primary & Secondary Fuel Types for Each Unit

Unit	Primary Fuel	Secondary Fuel
Combined Cycle (Gt-1 + St-1)	Natural Gas	Fuel Oil
Gas Turbine 2	Natural Gas	Fuel Oil
Gas Turbine 3	Natural Gas	Fuel Oil
Gas Turbine 4	Natural Gas	Fuel Oil
Steam Turbine 2	Coal	Natural Gas
Steam Turbine 3	Coal	Natural Gas

## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. For each generating unit and purchased power contract for the previous calendar year:
  - m. Minimum capacity at which the generating unit would be run or power must be purchased;

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**[Begin Confidential Information]**

**[End Confidential Information]**

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. For each generating unit and purchased power contract for the previous calendar year:
  - n. Whether, under standard operating procedures, the generating unit must be run if it is available to run;

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**[Begin Confidential Information]**

**[End Confidential Information]**

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## 2011 Integrated Resource Planning Actual Data Filing

### R14-2-703. Load-serving Entity Reporting Requirements

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. For each generating unit and purchased power contract for the previous calendar year:

o. Description of each generating unit as base load, intermediate, or peaking;

---

#### Combined Cycle 1 (CC1)

CC1 is a Combined Cycle unit consisting of Gas Turbine 1 (GT1), a natural gas fired simple cycle GE MS5001D combustion turbine constructed in 1963 with a gross rated capacity of 10 MW. GT1 is often operated in concert with Steam Unit 1 (ST1), a natural gas fired boiler constructed in 1963 with a gross rated capacity of 75 MW. ST1 can be operating independently or heat from the boiler burners can be supplemented by exhaust gas from GT1. Together their net rated capacity is 81 MW. Historically this unit has served the following functions within the AEPCO generation portfolio: (i) seasonal (summer) peaking, (ii) spinning reserves during the period when the unit is on line, (iii) reliability service for ST2 and ST3 unplanned outages, and (iv) collateral for market purchases allowing the Class A Partial Requirements Members to make economy purchases in the real-time energy market. AEPCO plans to continue operating CC1 in the future for seasonal peaking and as well as to serve as collateral for market purchases.

#### Gas Turbine 2 (GT2)

GT 2 is a simple cycle GE Frame 5N combustion turbine with a rated capacity of 20 MW and was constructed in 1972. Historically this generation resource has been utilized by AEPCO as non-spinning reserves. Under the Western Electric Coordinating Council (WECC) and Southwest Reserve Sharing Group (SRSG) procedures, any resource designated as non-spinning for reserve calculations is off-line generation capacity that can be ramped to capacity and synchronized to the grid within ten minutes of a dispatch instruction and is used to maintain system frequency stability during emergency conditions. The unit start time for GT2 is approximately seven minutes. Due to AEPCO's ability to perform these quick test starts within ten minutes this unit has been an economical option to satisfy AEPCO's regulatory non-spinning requirements. AEPCO plans to continue operating GT2 into the future primarily as a non-spinning resource and secondarily as collateral for market purchases.

## **2011 Integrated Resource Planning Actual Data Filing**

### **Gas Turbine 3 (GT3)**

GT3, constructed in 1975, is a simple cycle, natural gas fired Westinghouse 501B2 combustion turbine with rated capacity of 65 MW. AEPCO plans to continue operating GT3 into the future primarily for seasonal peaking and as collateral for market purchases.

### **Gas Turbine 4 (GT4)**

GT4 is a simple cycle, dual fuel, GE LM6000 peaking resource rated at approximately 40 MW. The unit is equipped with an SCR for NOx reduction. AEPCO plans to continue operating GT4 into the future primarily for seasonal peaking and as collateral for market purchases.

### **Steam Unit 2 (ST2) and Steam Unit 3 (ST3)**

ST2 and ST3 are virtually identical units commissioned in 1979 each having a gross nameplate rating of 195 MW. Coal is the primary fuel but the units have the ability to burn natural gas. AEPCO operates both ST2 and ST3 as load following resources to meet the resource requirements of the Class A Members.

## 2011 Integrated Resource Planning Actual Data Filing

### R14-2-703. Load-serving Entity Reporting Requirements

B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:

1. For each generating unit and purchased power contract for the previous calendar year:
  - p. Environmental impacts, including air emission quantities (in metric tons or pounds) and rates (in quantities per megawatt-hour) for carbon dioxide, nitrogen oxides, sulfur dioxide, mercury, particulates, and other air emissions subject to current or expected future environmental regulation;

APACHE STATION EMISSION CALCULATIONS 2011					
Generating Unit	Air Emissions				
	CO2 tons/year	TOTAL PM tons/year	SO2 tons/year	Hg lbs/year	NOx tons/year
ST1 - natural gas	1,359	0.020	0.000		0.000
ST2 - coal	1,119,332	161.60	1,782	24.85	1,959
ST2 - natural gas		0.30			
ST3 - coal	1,198,076	91.38	2,130	25.20	2,582
ST3 - natural gas		0.25			
GT1 - natural gas		0.0	0.0		0.0
GT2 - natural gas		0.0012	0.0004		0.2518
GT3 - natural gas		0.04	0.01		8.2
GT4 - natural gas	10,244	0.152	0.046		5.861



## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. For each generating unit and purchased power contract for the previous calendar year:

q. Water consumption quantities and rates; and

---

Information is not available regarding water consumption per generating unit. For all units, an estimated total of 4,550 acre feet of water was used in 2011 based on metered production well output.

## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

1. For each generating unit and purchased power contract for the previous calendar year:

r. Tons of coal ash produced per generating unit;

---

**[Begin Confidential Information]**

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

2. For the power supply system for the previous calendar year:
  - a. A description of generating unit commitment procedures;

---

### **Commitment Procedures**

All of AEPCO's generation is located at Apache Station. Apache Station consists of two Coal steam units (175 MW each), one Gas Steam unit (75 MW) and four Gas turbines ranging from 10 MW to 65 MW. In a normal year, Apache Steam Units 2 & 3 are both on-line except during March and/or April, when one of the units is off-line for a major or minor overhaul. When Steam Units 2 & 3 are both committed, they are dispatched economically each hour. The remaining units are dispatched seasonally or daily as needed to meet load on an economic basis. If AEPCO is able to economically purchase power against the gas units, AEPCO makes economy purchases prior to starting the gas units.

As a preference customer, AEPCO also has contract entitlements to Parker-Davis hydro and Salt Lake City Area Integrated Projects capacity (Colorado River Storage Project hydro). These hydro contracts are AEPCO's least expensive resources and are scheduled to the extent allowed in each contract against AEPCO's loads. This tends to level the output required from Apache Station and maximize station efficiency. AEPCO also enters into take-or-pay contracts (block purchases) that are used for fuel displacement and maintenance outage coverage.

Thus, subject to availability, the units are generally committed in economic order against the net of load minus hydro resources, short-term economy purchases and take-or-pay contracts.

## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

**2. For the power supply system for the previous calendar year:**

**b. Production cost;**

---

### **2011 Production Costs**

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

**2. For the power supply system for the previous calendar year:**

**c. Reserve requirements;**

---

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

2. For the power supply system for the previous calendar year:

d. Spinning reserve;

---

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

2. For the power supply system for the previous calendar year:

e. Reliability of generating, transmission, and distribution systems;

---

AEPCO does not own or operate any transmission or distribution systems. The following information was provided to AEPCO by Southwest Transmission Cooperative, Inc.

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**2011 Integrated Resource Planning Actual Data Filing**

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## 2011 Integrated Resource Planning Actual Data Filing

### R14-2-703. Load-serving Entity Reporting Requirements

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

2. For the power supply system for the previous calendar year:

- f. Purchase and sale prices, averaged by month, for the aggregate of all purchases and sales related to short-term contracts; and

---

AEPCO did not have any short-term contract purchases or sales during 2011.

## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

**2. For the power supply system for the previous calendar year:**

**g. Energy Losses;**

---

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## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

3. The level of self generation in the load-serving entity's service area for the previous calendar year; and

---

AEPCO is unique among entities covered by the IRP Rules in that it supplies power only at wholesale predominately to its Class A Distribution Cooperative Members and, therefore, has no self-generating customers at retail. AEPCO has no current data with respect to self-generation or cogeneration in its Class A Member Distribution Cooperatives' service areas.

## **2011 Integrated Resource Planning Actual Data Filing**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:**

4. An explanation of any resource procurement processes used by the load-serving entity during the previous calendar year that did not include use of an RFP, including the exception under which the process was used.

---

AEPCO did not acquire any new resources without an RFP.

# INDEX

Requirement	Page No.
A.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of demand-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:	
1. Hourly demand for the previous calendar year, disaggregated by:	
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B.) A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:	
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 3. The level of self generation in the load-serving entity's service area for the previous calendar year.....	73
 4. An explanation of any resource procurement processes used by the load-serving entity during the previous calendar year that did not include use of an RFP, including the exception under which the process was used.....	74

**Arizona Electric Power Cooperative, Inc.**

**Resource Planning Filing  
R14-2-703.C-F and H**

**Docket No. E-00000A-11-0113**

**March 30, 2012**

**Public Version**

## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

**C.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following items of load data and analyses, which may include a reference to the last filing made under this subsection for each item for which there has been no change in forecast since the last filing:**

1. Fifteen-year forecast of system coincident peak load (megawatts) and energy consumption (megawatt-hours) by month and year, expressed separately for residential, commercial, industrial, and other customer classes, for interruptible power; for resale; and for energy losses;

---

AEPCO has an obligation to provide resource planning on behalf of only two Class A Member Distribution Cooperatives located within Arizona, i.e., Duncan Valley Electric Cooperative, Inc. ("DVEC") and Graham County Electric Cooperative, Inc. ("GCEC"). AEPCO's peak load forecast covers the entirety of these Class A Members' loads, and does not distinguish by retail customer class. The Class A members provide AEPCO only with the number of customers in the requested retail classes and the associated historical monthly energy for each class. AEPCO derives its peak demand and energy forecasts for DVEC and GCEC from the total of these values. Therefore, AEPCO is unable to provide the requested peak demand information. However, AEPCO is able to provide a fifteen-year monthly energy forecast for aggregated DVEC and GCEC by residential, commercial, other and energy losses (megawatt-hours) on the following pages.

The commercial energy class includes data concerning both small and large commercial customers supplied by DVEC and GCEC. The Other energy class includes irrigation, mining, and public authority customer forecasts.

Neither DVEC nor GCEC have industrial or interruptible power customers.

AEPCO's sale for resale forecast for DVEC and Graham as well as its partial requirements Class A Members and other customers is included at the end of this filing.



## **2012 Integrated 15-Year Resource Plan**

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## **2012 Integrated 15-Year Resource Plan**

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## **2012 Integrated 15-Year Resource Plan**

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## **2012 Integrated 15-Year Resource Plan**

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## **2012 Integrated 15-Year Resource Plan**

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## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**C.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following items of load data and analyses, which may include a reference to the last filing made under this subsection for each item for which there has been no change in forecast since the last filing:**

2. Disaggregation of the load forecast of subsection (C)(1) into a component in which no additional demand management measures are assumed, and a component assuming the change in load due to additional forecasted demand management measures; and

---

AEPCO is unique among entities covered by the IRP Rules in that it supplies power only at wholesale predominately to its Class A Distribution Cooperative Members and, therefore, serves no demand-side role in the integrated resource planning process. As a result, AEPCO has no information to report concerning these components.

## 2012 Integrated 15-Year Resource Plan

### R14-2-703.    Load-serving Entity Reporting Requirements

**C.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following items of load data and analyses, which may include a reference to the last filing made under this subsection for each item for which there has been no change in forecast since the last filing:**

3. Documentation of all sources of data, analyses, methods, and assumptions used in making the load forecasts, including a description of how the forecasts were benchmarked and justifications for selecting the methods and assumptions used.

---

A complete copy of AEPCO's 2011 Load Forecast Report, approved by the AEPCO Board of Directors on October 12, 2011 and submitted to RUS for approval on November 16, 2011 is included behind Tab A. **The information contained in the AEPCO 2011 Load Forecast Report is confidential and its use and availability is restricted pursuant to the terms of the Protective Agreement between AEPCO and Staff dated March 14, 2012.**

## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

1. A 15-year resource plan, providing for each year:
  - a. Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment;

---

AEPCO has an obligation to provide resource planning only on behalf of DVEC and GCEC in the State of Arizona. AEPCO has already acquired, on behalf of these Arizona Class A Members, sufficient resources to fulfill forecasted power requirements through 2020. The current resource profile anticipates a summer peak need to acquire approximately 12 MW of resources in 2021 growing to 18 MW in 2026, under the assumption that the end date for operations for four units at Apache, as reflected in their respective wholesale power contracts, does not change by the results of a current study to determine whether to either extend operations of these units beyond the current contract end date. If the operating life of these units is extended, the shortfall will be much smaller and met with concurrent real-time purchases. As a result, until the operating life of these units is confirmed, AEPCO does not have any plans for new generating units or long term purchase power sources for the 15-year period.

For existing generation, AEPCO provides the following projected data:



## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:

1. A 15-year resource plan, providing for each year:
  - a. Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment;

---

B-1 For each generating unit and purchased power contract:

- a. In-service date and book life or contract period;

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## 2012 Integrated 15-Year Resource Plan

### R14-2-703.    Load-serving Entity Reporting Requirements

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

1. A 15-year resource plan, providing for each year:
  - a. Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment;

---

**B-1            For each generating unit and purchased power contract:**

- b. Type of generating unit or contract;

#### Type of Generating Unit or Contract

<b>Unit/Contract</b>	<b>Type of Unit/Contract</b>
Gas Turbine 1	Peaking
Steam Turbine 1	Intermediate
Gas Turbine 2	Peaking
Gas Turbine 3	Peaking
Gas Turbine 4	Peaking
Steam Turbine 2	Load Following
Steam Turbine 3	Load Following
SCL-IP	Firm Hydro
Parker-Davis	Firm Hydro
South Point	Unit Contingent PPA
Griffith	Unit Contingent PPA
Sempra	Firm PPA

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

1. A 15-year resource plan, providing for each year:
  - a. Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment;

---

**B-1 For each generating unit and purchased power contract:**

- c. The load-serving entity's share of the generating unit's capacity, or of capacity under the contract, in megawatts;

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## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:

1. A 15-year resource plan, providing for each year:
  - a. Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment;

---

B-1 For each generating unit and purchased power contract:

- d. Maximum generating unit or contract capacity, by hour, day, or month, if such capacity varies during the year;

AEPCO's maximum generating unit capacity does not vary during the year.

Purchase power contract capacities as modeled in PROMOD are listed below:

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## **2012 Integrated 15-Year Resource Plan**

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## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

1. A 15-year resource plan, providing for each year:
  - a. Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment;

---

**B-1 For each generating unit and purchased power contract:**

- e. Annual capacity factor (generating units only);

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## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:

1. A 15-year resource plan, providing for each year:
  - a. Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment;

---

B-1 For each generating unit and purchased power contract:

- f. Average heat rate of generating units and, if available, heat rates at selected output levels;

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## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:

1. A 15-year resource plan, providing for each year:
  - a. Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment;

---

B-1 For each generating unit and purchased power contract:

- g. Average fuel cost for generating units, in dollars per million Btu for each type of fuel;

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## **2012 Integrated 15-Year Resource Plan**

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## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:

1. A 15-year resource plan, providing for each year:
  - a. Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment;

---

B-1 For each generating unit and purchased power contract:

- h. Other variable operating and maintenance costs for generating units, in dollars per megawatt hour;

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## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

1. A 15-year resource plan, providing for each year:
  - a. Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment;

---

**B-1 For each generating unit and purchased power contract:**

- i. Purchased power energy costs for long-term contracts, in dollars per megawatt-hour;

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## **2012 Integrated 15-Year Resource Plan**

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## **2012 Integrated 15-Year Resource Plan**

R14-2-703. Load-serving Entity Reporting Requirements

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1. A 15-year resource plan, providing for each year:
  - a. Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment;

---

B-1 For each generating unit and purchased power contract:

- j. Fixed operating and maintenance costs of generating units, in dollars per megawatt;  
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## **2012 Integrated 15-Year Resource Plan**

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1. A 15-year resource plan, providing for each year:
  - a. Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment;

---

**B-1 For each generating unit and purchased power contract:**

- k. Demand charges for purchased power;

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## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

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1. A 15-year resource plan, providing for each year:
  - a. Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment;

---

B-1 For each generating unit and purchased power contract:

1. Fuel type for each generating unit;

#### Primary & Secondary Fuel Types for Each Unit

Unit	Primary Fuel	Secondary Fuel
Combined Cycle (Gt-1 + St-1)	Gas	None*
Gas Turbine 2	Gas	Oil
Gas Turbine 3	Gas	None*
Gas Turbine 4	Gas	Oil
Steam Turbine 2	Coal	Gas
Steam Turbine 3	Coal	Gas

\*AEPCO's current air quality permit expires in July 2012. Through the permit renewal process, AEPCO is removing operating scenarios from its permit. Those scenarios remove secondary fuels for some generating units as noted above. These changes will be reflected in the new permit when issued.



## **2012 Integrated 15-Year Resource Plan**

R14-2-703. Load-serving Entity Reporting Requirements

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---

B-1 For each generating unit and purchased power contract:

- m. Minimum capacity at which the generating unit would be run or power must be purchased;

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## 2012 Integrated 15-Year Resource Plan

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---

B-1 For each generating unit and purchased power contract:

- n. Whether, under standard operating procedures, the generating unit must be run if it is available to run;

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## 2012 Integrated 15-Year Resource Plan

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---

**B-1** For each generating unit and purchased power contract:

- o. Description of each generating unit as base load, intermediate, or peaking;

#### **Combined Cycle 1 (CC1)**

CC1 is a Combined Cycle unit consisting of Gas Turbine 1 (GT1), a natural gas fired simple cycle GE MS5001D combustion turbine with a gross rated capacity of 10 MW. GT1 is often operated in concert with Steam Unit 1 (ST1), a natural gas fired boiler constructed in 1963 with a gross rated capacity of 75 MW. ST1 can be operated independently or heat from the boiler burners can be supplemented by exhaust gas from GT1. Together their net rated capacity is 81 MW. AEPCO plans to continue operating CC1 in the future for seasonal peaking and as collateral for market purchases.

#### **Gas Turbine 2 (GT2)**

GT 2 is a simple cycle GE Frame 5N combustion turbine with a rated capacity of 20 MW. AEPCO plans to continue operating GT2 into the future primarily as a non-spinning resource and as collateral for market purchases.

#### **Gas Turbine 3 (GT3)**

GT3 is a simple cycle, natural gas fired Westinghouse 501B2 combustion turbine with a rated capacity of 65 MW. AEPCO plans to continue operating GT3 into the future primarily for seasonal peaking and as collateral for market purchases.

#### **Gas Turbine 4 (GT4)**

GT4 is a simple cycle, dual fuel, GE LM6000 peaking resource rated at approximately 40 MW. The unit is equipped with an SCR for NOx reduction. AEPCO plans to continue operating GT4 into the future primarily for seasonal peaking and as collateral for market purchases.

## **2012 Integrated 15-Year Resource Plan**

### **Steam Unit 2 (ST2) and Steam Unit 3 (ST3)**

ST2 and ST3 are virtually identical units each having a gross nameplate rating of 195 MW. Coal is the primary fuel but the units have been modified to utilize natural gas. AEPCO plans to continue operating both ST2 and ST3 as load following resources to meet resource requirements for the Class A Members.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703. Load-serving Entity Reporting Requirements**

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---

**B-1 For each generating unit and purchased power contract:**

- p. Environmental impacts, including air emission quantities (in metric tons or pounds) and rates (in quantities per megawatt-hour) for carbon dioxide, nitrogen oxides, sulfur dioxide, mercury, particulates, and other air emissions subject to current or expected future environmental regulation;

The following pages contain an emissions forecast based on long-range load forecast data and past emissions performance. The emissions performance data were derived from 2011 actual measured emissions, where available, and emission factors developed for specific generating unit designs and fuels. AEPCO has no emissions data available for purchase power contracts.

## **2012 Integrated 15-Year Resource Plan**

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## **2012 Integrated 15-Year Resource Plan**

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## **2012 Integrated 15-Year Resource Plan**

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## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

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1. A 15-year resource plan, providing for each year:
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---

**B-1 For each generating unit and purchased power contract:**

- q. Water consumption quantities and rates; and

Information is not available regarding historical water consumption per generating unit. For all units, an estimated total of 4,550 acre feet of water was used in 2011 based on metered production well output. AEPCO does not expect the amount of water usage to significantly increase as it is focusing on increasing process water reuse plant-wide as an alternative to using fresh water.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

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  - a. Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment;

---

**B-1            For each generating unit and purchased power contract:**

- r. Tons of coal ash produced per generating unit;

In AEPCO's last rate case decision, Decision No. 72055 dated January 6, 2011, AEPCO was instructed to conduct a study of the future role of the Apache Station and how that role relates to its members' needs for future power supply. The Commission also ordered that AEPCO include in that study "potential rate impacts associated with . . . known or pending EPA regulatory actions that could impact" Apache Station. Data gathering throughout 2011 concerning this Apache Station study and its actual use by members was necessary, given the new rate designs and usage patterns associated with the Station in order to assess its role and potential environmental impacts. This topic will be addressed in more detail in this Apache Station study. Currently, AEPCO anticipates the study will be completed by September 30, 2012.

## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:

1. A 15-year resource plan, providing for each year:
- b. Projected data for each of the items listed in subsection (B)(2), for the power supply system;

- 
- B-2 For the power supply system;
- a. A description of generating unit commitment procedures;

#### Commitment Procedures

All of AEPCO's generation capability is located at Apache Station. Apache Station consists of two Coal steam units (175 MW each), one Gas Steam unit (75 MW) and four Gas turbines ranging from 10 MW to 65 MW. In a normal year, Apache Steam Units 2 & 3 are both on-line except during March and/or April, when one of the units is off-line for a major or minor overhaul. When Steam Units 2 & 3 are both committed, they are dispatched economically each hour. The remaining units are dispatched seasonally or daily as needed to meet load on an economic basis. If AEPCO is able economically to purchase power against the gas units, AEPCO makes economy purchases prior to starting the gas units.

As a preference customer, AEPCO also has contract entitlements to Parker-Davis hydro and Salt Lake City Area Integrated Projects capacity (Colorado River Storage Project hydro). These hydro contracts are AEPCO's least expensive resources and are scheduled to the extent allowed in each contract against AEPCO's loads. This tends to level the output required from Apache Station and maximize station efficiency. AEPCO also enters into take-or-pay contracts (block purchases) that are used for fuel displacement and maintenance outage coverage.

Thus, subject to availability, the units are generally committed in economic order against the net of load minus hydro resources, short-term economy purchases and take-or-pay contracts.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703. Load-serving Entity Reporting Requirements**

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1. A 15-year resource plan, providing for each year:
  - b. Projected data for each of the items listed in subsection (B)(2), for the power supply system;

---

B-2 For the power supply system;  
b. Production cost;

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## **2012 Integrated 15-Year Resource Plan**

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1. A 15-year resource plan, providing for each year:
  - b. Projected data for each of the items listed in subsection (B)(2), for the power supply system;

- 
- B-2            For the power supply system;
- c. Reserve Requirements;
  - d. Spinning Reserve;

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## **2012 Integrated 15-Year Resource Plan**

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1. A 15-year resource plan, providing for each year:
  - b. Projected data for each of the items listed in subsection (B)(2), for the power supply system;

- 
- B-2                      For the power supply system;
- e. Reliability of generating, transmission, and distribution systems;

AEPCO does not own transmission or distribution facilities. For projected generation reliability data, monthly five-year averages were calculated for each generating unit using actual data from the period 1997-2011.

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## 2012 Integrated 15-Year Resource Plan

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1. A 15-year resource plan, providing for each year:
  - b. Projected data for each of the items listed in subsection (B)(2), for the power supply system;

---

**B-2** For the power supply system;

- f. Purchase and sale prices, averaged by month, for the aggregate of all purchases and sales related to short-term contracts;

AEPCO has no short-term contract purchases or sales included in the forecast period.

## 2012 Integrated 15-Year Resource Plan

### R14-2-703.    Load-serving Entity Reporting Requirements

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1. A 15-year resource plan, providing for each year:
  - b. Projected data for each of the items listed in subsection (B)(2), for the power supply system;

---

B-2                For the power supply system;  
g. Energy Losses;

Projected energy losses are forecast at a network energy loss rate of 2.37% transmission services during the planning period.



## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

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1. A 15-year resource plan, providing for each year:
  - c. The capital cost, construction time, and construction spending schedule for each generating unit expected to be new or refurbished during the period;

---

AEPCO does not currently have any plans for any new generating units or plans to refurbish any units during the next 15-year period.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

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1. A 15-year resource plan, providing for each year:
  - d. The escalation levels assumed for each component of cost, such as, but not limited to, operating and maintenance, environmental compliance, system integration, backup capacity, and transmission delivery, for each generating unit and purchased power source;

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**Included behind Tab B is a long-range plan of capital costs for Apache Station. The information contained in the plan is confidential and its use and availability is restricted pursuant to the terms of the Protective Agreement between AEPCO and Staff dated March 14, 2012.**

The plan does not, at this point, include projected costs of potential environmental control equipment upgrades or additional air pollution control equipment. AEPCO has commenced a comprehensive study to determine the extent of environmental equipment needed to comply with current, new and proposed regulations.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703. Load-serving Entity Reporting Requirements**

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1. A 15-year resource plan, providing for each year:
    - e. If discontinuation, decommissioning, or mothballing of any power source or permanent derating of any generating facility is expected:
      - i. Identification of each power source or generating unit involved;
      - ii. The costs and spending schedule for each discontinuation, decommissioning, mothballing, or derating; and
      - iii. The reasons for each discontinuation, decommissioning, mothballing, or derating;
- 

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## **2012 Integrated 15-Year Resource Plan**

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1. A 15-year resource plan, providing for each year:
  - f. The capital costs and operating and maintenance costs of all new or refurbished transmission and distribution facilities expected during the 15-year period;

---

AEPCO does not own transmission or distribution facilities.

## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

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1. A 15-year resource plan, providing for each year:
  - g. An explanation of the need for and purpose of all expected new or refurbished transmission and distribution facilities, which explanation shall incorporate the load-serving entity's most recent transmission plan filed under A.R.S. 40-360.02(A) and any relevant provisions of the Commission's most recent Biennial Transmission Assessment decision regarding the adequacy of transmission facilities in Arizona; and

---

AEPCO does not own transmission or distribution facilities.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703. Load-serving Entity Reporting Requirements**

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1. A 15-year resource plan, providing for each year:
  - h. Cost analyses and cost projections, including the cost of compliance with existing and expected environmental regulations;

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## **2012 Integrated 15-Year Resource Plan**

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- 2. Documentation of the data, assumptions, and methods or models used to forecast production costs and power production for the 15-year resource plan, including the method by which the forecast was benchmarked;**

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## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

3. A description of:
  - a. Each potential power source that was rejected;
  - b. The capital costs, operating costs, and maintenance costs of each rejected source;  
and
  - c. The reasons for rejecting each source;

---

As mentioned previously, AEPCO has no need for resources until beyond 2020 and intends to make short term purchase power arrangements to fulfill any such future resource requirement. Given this, no potential power sources have been entertained and none have been rejected.

## 2012 Integrated 15-Year Resource Plan

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

4. A 15-year forecast of self generation by customers of the load-serving entity, in terms of annual peak production (megawatts) and annual energy production (megawatt-hours);

---

All Requirement Members of AEPCO contractually cannot have any self generation and must take all of their power requirements from AEPCO. Partial Requirement Members are each individually responsible to meet their load above their allocated capacity in AEPCO resources and may use self generation to do so. AEPCO does not have any information on PRM Member loads above their allocated capacity in AEPCO resources or the means by which PRMs meet that load.

## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

5. Disaggregation of the forecast of subsection (D)(4) into two components, one reflecting the self generation projected if no additional efforts are made to encourage self generation, and one reflecting the self generation projected to result from the load-serving entity's institution of additional forecasted self generation measures;

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Not Applicable. See response to D.4.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

6. A 15-year forecast of the annual capital costs and operating and maintenance costs of the self generation identified under subsection (D)(4) and (5);

---

Not Applicable. See response to D.4.

## 2012 Integrated 15-Year Resource Plan

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

7. Documentation of the analysis of the self generation under subsections (D)(4) through (6);

---

Not Applicable. See response to D.4.

## 2012 Integrated 15-Year Resource Plan

### R14-2-703.    Load-serving Entity Reporting Requirements

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

8. A plan that considers using a wide range of resources and promotes fuel and technology diversity within its portfolio;

---

As discussed in prior responses, given the fact that any need for new resources does not exist until, at least, into the next decade, no plan for a wide range of resources is needed until a date much closer to the date of need.

## 2012 Integrated 15-Year Resource Plan

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

9. A calculation of the benefits of generation using renewable energy resources;

---

As previously explained, AEPCO has no need for any additional generation resources, for the foreseeable future, so there are no benefits of generation to calculate—renewable or otherwise. DVEC and GCEC do utilize REST Plan surcharge dollars to support renewable programs.

Their REST Plans for 2012 were approved by Decision No. 72797 and 72798 dated February 2, 2012 pursuant to R14-2-1814.

## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

10. A plan that factors in the delivered cost of all resource options, including costs associated with environmental compliance, system integration, backup capacity, and transmission delivery;
- 

As discussed previously, because no new generation resource options are being considered for the planning horizon, there are no delivered costs to factor into a plan.



## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

11. Analysis of integration costs for intermittent resources;
- 

AEPCO does not have intermittent resources in its resource portfolio.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

12. A plan to increase the efficiency of the load-serving entity's generation using fossil fuel;
- 

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## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

13. Data to support technology choices for supply-side resources;

---

Because AEPCO does not require any new supply-side resources at this time, no technology choices are being made.

## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

14. A description of the demand management programs or measures included in the 15-year resource plan, including for each demand management program or measure:
  - a. How and when the program or measure will be implemented;
  - b. The projected participation level by customer class for the program or measure;
  - c. The expected change in peak demand and energy consumption resulting from the program or measure;
  - d. The expected reduction in environmental impacts, including air emissions, solid waste, and water consumption, attributable to the program or measure;
  - e. The expected societal benefits, societal costs, and cost-effectiveness of the program or measure;
  - f. The expected life of the measure; and
  - g. The capital costs, operating costs, and maintenance costs of the measure, and the program costs;

---

Because AEPCO supplies no power at retail and, therefore, has no customers for demand management programs or measures, none are included in AEPCO's plan.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

15. For each demand management measure that was considered but rejected:
  - a. A description of the measure;
  - b. The estimated change in peak demand energy consumption from the measure;
  - c. The estimated cost-effectiveness of the measure;
  - d. The capital costs, operating costs, and maintenance costs of the measure, and the program costs; and
  - e. The reasons for rejecting the measure;

---

See the response to D.14.

## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:

16. Analysis of future fuel supplies that are part of the resource plan; and

---

AEPCO's generation is connected to the El Paso Natural Gas Southern System pipelines, which are located in immediate proximity to the Apache Generation Station. AEPCO has approximately 21,000 Dth of firm transportation in the winter months and approximately 33,000 Dth of firm transportation in the summer months. AEPCO also has 95,000 Dth of firm storage from Chevron Keystone Gas Storage, LLC, owned and operated by Chevron Pipe Line Company, located in Kermit Texas. The maximum daily injection quantity is 2,500 Dths and the maximum daily withdrawal quantity is 5,000 Dth per day.

AEPCO uses the transportation agreements to transport natural gas from the San Juan and Permian basins to Apache Station and uses the gas storage agreement to meet the hourly and daily balancing requirements on the El Paso Pipeline.

In November 2011, AEPCO received a decision from the Surface Transportation Board in its transportation rate case filed at the end of year 2008 whereby AEPCO received a ten year rate prescription (2009-2018) for coal transportation from various coal supply origins on the BNSF Railway in New Mexico, Wyoming and Montana. Since that time, AEPCO has been evaluating the decision and developing a strategy for future coal supply.

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## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**D.) A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:**

17. A plan for reducing environmental impacts related to air emissions, solid waste, and other environmental factors, and for reducing water consumption.

---

Apache Station is currently a zero liquid discharge facility and will maintain that status while focusing on increasing process water reuse plant-wide as an alternative to using fresh water.

AEPCO continues to employ sound air pollution control practices in operating its Apache Station pollution control equipment. AEPCO maintains compliance with emission limits for total particulates, sulfur dioxide, nitrogen oxides and mercury in its air quality control permit. Recent improvements to reduce air emissions include (i) installation of advanced overfire air systems on coal-fired boilers to better control NOx, (ii) the installation of advanced design spray nozzles in the scrubber modules to enhance performance of flue gas desulfurization systems installed on the coal-fired boilers and, (iii) the upgrade of controls and plate rappers on electrostatic precipitators installed on the coal-fired boilers.

## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

**E.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following analyses and plan:**

1. Analyses to identify and assess errors, risks, and uncertainties in the following, completed using methods such as sensitivity analysis and probabilistic analysis:
  - a. Demand forecasts;

---

The two Arizona distribution cooperatives for which AEPCO has resource planning responsibility are Duncan Valley Electric Cooperative, Inc., and Graham County Electric Cooperative Inc., (“DVEC” and “GCEC”, respectively). Together they have a total annual medium economic peak demand forecast of less than 55 MW through 2026 based on the 2011 load forecast. Historically, they are also the slowest growing of AEPCO’s Arizona Class A Members. Therefore, AEPCO does not expect significant growth for these two ARM service territories. AEPCO is forecasting a total annual average growth rate in system requirements for DVEC and GCEC of 1.1% for the period 2010-2026, equating to a total system requirement forecast of 219,864 MWh by 2026 under the medium economic scenario.

The medium economic is the most expected base case forecast. As required by RUS, AEPCO also studies sensitivities to the load forecast, including low and high economic conditions and low and high weather conditions, creating a range of potential forecasts of peak demand and energy requirements.

For the weather and economic bands generated around the base cases, the forecast models assume more extreme values for the weather or economic variables included in the regression equation. The bands assume constant upper and lower bounds around the base case, reflecting higher and lower loads due to severe (optimistic) or mild (pessimistic) conditions.

The purpose of evaluating these scenarios is to provide a set of forecasts that bound a range of plausible futures based upon weather and economic related influences—each possible but not assured.



## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**E.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following analyses and plan:**

1. Analyses to identify and assess errors, risks, and uncertainties in the following, completed using methods such as sensitivity analysis and probabilistic analysis:
  - b. The costs of demand management measures and power supply;

---

Because AEPCO serves power only at wholesale and has no retail load to which demand management programs would apply, no costs of demand management measures and risks on power supply are present or have been assessed. AEPCO assumes that its sensitivity analysis of aggregated member forecasts does adequately reflect demand side risks.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**E.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following analyses and plan:**

1. Analyses to identify and assess errors, risks, and uncertainties in the following, completed using methods such as sensitivity analysis and probabilistic analysis:
  - c. The availability of sources of power;

---

GCEC and DVEC's current share of existing resources, including generating units located at Apache Generating Station and long-term power purchase contracts, is sufficient to cover both cooperatives' forecast total loads through 2020.

AEPCO is currently conducting a unit study to explore the contract end dates of Apache Generating Station's Combined Cycle 1 (CC1), Gas Turbine 2 (GT2), and Gas Turbine 3 (GT3) beyond the current Class A Member contract end date. The need for future resources declines further when these units are kept in the Members' resource portfolios past the current contract expiration date.

AEPCO is not currently researching the availability of sources of new power on behalf of the Arizona Class A All Requirements Members as their earliest need date isn't until early next decade. It is anticipated that any nominal shortfall will be mitigated by short-term or market purchases.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**E.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following analyses and plan:**

1. Analyses to identify and assess errors, risks, and uncertainties in the following, completed using methods such as sensitivity analysis and probabilistic analysis:
  - d. The costs of compliance with existing and expected environmental regulations;

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## **2012 Integrated 15-Year Resource Plan**

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## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**E.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following analyses and plan:**

1. Analyses to identify and assess errors, risks, and uncertainties in the following, completed using methods such as sensitivity analysis and probabilistic analysis:
  - e. Any analysis by the load-serving entity in anticipation of potential new or enhanced environmental regulations;

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## **2012 Integrated 15-Year Resource Plan**

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## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**E.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following analyses and plan:**

1. Analyses to identify and assess errors, risks, and uncertainties in the following, completed using methods such as sensitivity analysis and probabilistic analysis:
  - f. Changes in fuel prices and availability;

---

Natural gas prices in recent years have experienced unprecedented price volatility, making the future of gas prices difficult to forecast. AEPCO enlists the services of ACES Power Marketing (APM) to forecast natural gas prices for Arizona. To reduce financial and availability risks associated with natural gas, a board policy is in place governing AEPCO's gas hedging strategy to reduce exposure to the natural gas market.

Further, AEPCO began operation of its coal blending facility in 2004 which allows significant operational flexibility in types and qualities of coal burned. In addition, the November 22, 2011 Surface Transportation Board (STB) ruling in favor of AEPCO on equitable rates from rail carriers will significantly increase supply flexibility. The effect of this ruling is new coal markets will be open to AEPCO and this will help stabilize long term coal fuel costs for Apache Generating Station.

Additionally, AEPCO's two load following coal-fired units, ST2 and ST3, have the flexibility of fuel switching. These units can be converted to burn natural gas in place of coal should the gas and coal market prices fluctuate or certain environmental constraints associated with burning coal make it a more economical to operate in that manner. There is a change in the unit heat rate and approximately a four megawatt auxiliary reduction when switching to burning natural gas.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**E.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following analyses and plan:**

1. Analyses to identify and assess errors, risks, and uncertainties in the following, completed using methods such as sensitivity analysis and probabilistic analysis:
  - g. Construction costs, capital costs, and operating costs; and

---

As discussed previously, AEPCO is not currently engaged in construction due to the lack of new generation needed during the 15-year resource planning period and is capable of reliably serving the demand of its ARM members under its current resource portfolio without incurring additional construction/capital costs.

AEPCO develops and updates as revised load forecasts require, a flexible set of both long and short-term plans that identify an optimal mix of demand and supply-side alternatives for potential future load growth scenarios. These plans include power supply planning models containing accurate representations of AEPCO's existing resources and any projected requirements for additional resources.



## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**E.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following analyses and plan:**

2. A description and analysis of available means for managing the errors, risks, and uncertainties identified and analyzed in subsection (E)(1), such as obtaining additional information, limiting risk exposure, using incentives, creating additional options, incorporating flexibility, and participating in regional generation and transmission projects; and

---

Through AEPCO's normal regional planning activities and those activities identified in the response to R14-2-703.E.1 AEPCO, as required by load growth, evaluates options and flexible opportunities to limit risk exposure and will create additional options as needed by participation in regional generation and transmission projects.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**E.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following analyses and plan:**

3. A plan to manage the errors, risks, and uncertainties identified and analyzed in subsection (E)(1).

---

AEPCO will continue to monitor the forward pricing for its most influential costs including coal and natural gas. Specifically, AEPCO coordinates internally and with external entities including ACES Power Marketing to identify risks and develop hedging strategies as needed to limit exposures.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**F.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a 15-year resource plan that:**

1. Selects a portfolio of resources based upon comprehensive consideration of a wide range of supply- and demand-side options;
- 

See previous discussions. Because no new portfolio of resources is required in this planning horizon, no consideration of options is necessary at this time.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**F.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a 15-year resource plan that:**

2. Will result in the load-serving entity's reliably serving the demand for electric energy services;

---

AEPCO is capable of reliably serving the demand of its ARM members under its current resource portfolio for the foreseeable future.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**F.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a 15-year resource plan that:**

3. Will address the adverse environmental impacts of power production;
- 

AEPCO has maintained and will continue to maintain an excellent record of environmental compliance. AEPCO operates under an environmental commitment policy that confirms its responsibility to comply with all applicable laws, regulations and permit conditions and to conduct daily operations in a compliant manner.

## 2012 Integrated 15-Year Resource Plan

### R14-2-703.    Load-serving Entity Reporting Requirements

**F.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a 15-year resource plan that:**

4. Will include renewable energy resources to meet or exceed the greater of the Annual Renewable Energy Requirement in R14-2-1804 or the following annual percentages of retail kWh sold by the load-serving entity:

<b>Calendar Year</b>	<b>Percentage of Retail kWh Sold During Calendar Year</b>
2010	2.5%
2011	3.0%
2012	3.5%
2013	4.0%
2014	4.5%
2015	5.0%
2016	6.0%
2017	7.0%
2018	8.0%
2019	9.0%
2020	10.0%
2021	11.0%
2022	12.0%
2023	13.0%
2024	14.0%
After 2024	15.0%

---

AEPCO sells no electricity at retail. It is not an Affected Utility as defined in R14-2-1801.A, and, therefore, is not subject to the requirements of R14-2-1804 or R14-2-1805.

## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

**F.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a 15-year resource plan that:**

5. Will include distributed generation energy resources to meet or exceed the greater of the Distributed Renewable Energy Requirement in R14-2-1805 or the following annual percentages as applied to the load-serving entity's Annual Renewable Energy Requirement:

2007	5%
2008	10%
2009	15%
2010	20%
2011	25%
After 2011	30%

See the response to R14-2-703.F.4. AEPCO's member distribution cooperatives do supply power at retail and annually submit renewable plans for approval by the Commission pursuant to R14-2-1814. Upon Commission approval of those plans, their provisions substitute for the requirements of Rules 1804 and 1805. DVEC and GCEC's 2012 REST Plans were approved by Decision Nos. 72797 and 72798.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**F.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a 15-year resource plan that:**

6. Will address energy efficiency so as to meet any requirements set in rule by the Commission or in an order of the Commission;

---

AEPCO is not subject to any energy efficiency requirements set in rule by the Commission. AEPCO supplies no electricity at retail and, therefore, is not an “Affected Utility” as that term is defined in R14-2-2401.2 of the Commission’s Electric Energy Efficiency Standards rules.



## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**F.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a 15-year resource plan that:**

7. Will effectively manage the uncertainty and risks associated with costs, environmental impacts, load forecasts, and other factors;

---

In AEPCO's last rate case decision, Decision No. 72055 dated January 6, 2011, AEPCO was instructed to conduct a study of the future role of the Apache Station and how that role relates to its members' needs for future power supply. The Commission also ordered that AEPCO include in that study "potential rate impacts associated with . . . known or pending EPA regulatory actions that could impact" Apache Station. Data gathering throughout 2011 concerning actual usage of Apache Station was necessary, given the new rate designs and usage patterns associated with the Station in order to assess its role and potential environmental impacts. Currently, AEPCO anticipates the study will be completed by September 30, 2012.

See also the response to R14-2-703.E.1.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**F.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a 15-year resource plan that:**

8. Will achieve a reasonable long-term total cost, taking into consideration the objectives set forth in subsections (F)(2) through (7) and the uncertainty of future costs; and

---

As discussed in prior responses, given the small need for resources which will not occur until the next decade at the earliest, AEPCO has not identified any need for additional generation resources.

Because no new generation resource options are being considered at this time, there are no additional long-term costs to be taken into consideration outside of those associated with AEPCO's current resource mix.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**F.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a 15-year resource plan that:**

9.     Contains all of the following:
  - a.    A complete description and documentation of the plan, including supply and demand conditions, availability of transmission, costs, and discount rates utilized;

---

See prior responses.

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**F.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a 15-year resource plan that:**

9.        Contains all of the following:
  - b.    A comprehensive, self-explanatory load and resources table summarizing the plan;

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## 2012 Integrated 15-Year Resource Plan

### R14-2-703. Load-serving Entity Reporting Requirements

F.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a 15-year resource plan that:

9. Contains all of the following:
  - c. A brief executive summary;

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AEPCO is now obligated to provide resource planning on behalf of only two of its Class A Member Distribution Cooperatives located within Arizona, i.e., Duncan Valley Electric Cooperative, Inc. ("DVEC") and Graham County Electric Cooperative, Inc. ("GCEC"). AEPCO's load forecast covers the entirety of these Class A Members' loads. Together they have a total annual medium economic peak demand forecast of less than 55 MW through 2026 based on the 2011 load forecast. Historically, they are also the slowest growing of AEPCO's Arizona Class A Members. Therefore, AEPCO does not expect significant growth for these two ARM service territories. AEPCO is forecasting a total annual average growth rate in system requirements for DVEC and GCEC of 1.1% for the period 2010-2026, equating to a total system requirement forecast of 219,864 MWh by 2026 under the medium economic scenario.

[Begin Confidential Information]

[End Confidential Information]

Currently, all of AEPCO generation is located at Apache Station. Apache Station consists of two Coal steam units (175 MW each), one Gas Steam unit (75 MW) and four Gas turbines ranging from 10 MW to 65 MW. In a normal year, Apache Steam Units 2 & 3 are both on-line except during March and/or April, when one of the units is off-line for a major or minor overhaul.

**THIS PAGE CONTAINS CONFIDENTIAL INFORMATION PROTECTED  
PURSUANT TO THE PROTECTIVE AGREEMENT BETWEEN AEPCO  
AND STAFF DATED MARCH 14, 2012.**

## **2012 Integrated 15-Year Resource Plan**

As a preference customer, AEPCO also has contract entitlements to Parker-Davis hydro and Salt Lake City Area Integrated Projects capacity (Colorado River Storage Project hydro). These hydro contracts are AEPCO's least expensive resources and are scheduled to the extent allowed in each contract against AEPCO's loads. This tends to level the output required from Apache Station and maximize station efficiency. AEPCO also enters into take-or-pay contracts (block purchases) that are used for fuel displacement and maintenance outage coverage.

**[Begin Confidential Information]**

**[End Confidential Information]**

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AND STAFF DATED MARCH 14, 2012.**

## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703.    Load-serving Entity Reporting Requirements**

**F.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a 15-year resource plan that:**

9.            Contains all of the following:
  - d.    An index to indicate where the responses to each filing requirement of these rules can be found; and

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See Tab E.



## 2012 Integrated 15-Year Resource Plan

### R14-2-703.    Load-serving Entity Reporting Requirements

**F.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a 15-year resource plan that:**

9.            Contains all of the following:
  - e.    Definitions of the terms used in the plan.

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Abbreviation	Description
ACI	Activated Carbon Injection
APM	Aces Power Marketing
ARM	All Requirements Member
AEC	Anza Electric Cooperative, Inc.
AEPCO	Arizona Electric Power Cooperative, Inc.
DVEC	Duncan Valley Electric Cooperative, Inc.
ED-2	Electrical District #2
EPA	Environmental Protection Agency
FIP	Federal Implementation Plan
GCEC	Graham County Electric Cooperative, Inc.
H <sub>2</sub> S	Hydrogen sulfide
IMPACT	Detailed Financial Modeling Software
LAER	Lowest achievable emission rate
MATS	Mercury and Air Toxics Rule
MEC	Mohave Electric Cooperative, Inc.
NAAQS	National Ambient Air Quality Standards
NO <sub>x</sub>	Oxides of nitrogen
PM <sub>2.5</sub>	Particulate matter less than 2.5 microns
PRM	Partial Requirements Member
PROMOD	Detailed Production Cost Modeling Software
RACT	Reasonably available control technology
RCRA	Resource Conservation and Recovery Act
RUS	Rural Utilities Service
SCR	Selective catalytic reduction
SDAS	Sulfur dioxide absorbent systems
Sierra	Sierra Southwest Cooperative Services, Inc.
SO <sub>2</sub>	Sulfur dioxide
SSVEC	Sulphur Springs Valley Electric Cooperative, Inc.
STB	Surface Transportation Board
SWTC	Southwest Transmission Cooperative, Inc.
TEC	Trico Electric Cooperative, Inc.
TRS	Transmission Requirements Study
VOCs	Volatile organic compounds
WECC	Western Electricity Coordinating Council

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## **2012 Integrated 15-Year Resource Plan**

### **R14-2-703. Load-serving Entity Reporting Requirements**

**H.) With its resource plan, a load-serving entity shall include an action plan, based on the results of the resource planning process, that:**

1. Includes a summary of actions to be taken on future resource acquisitions;
2. Includes details on resource types, resources capacity, and resource timing; and
3. Covers the three-year period following the Commission's acknowledgment of the resource plan.

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AEPCO has an obligation to provide resource planning on behalf of only two Class A Member Distribution Cooperatives located within Arizona, DVEC and GCEC. AEPCO has acquired, on behalf of these Arizona Class A Members, sufficient resources to meet forecasted power requirements through 2020.

The current resource profile anticipates a small need to acquire approximately 12 MW of resources in 2021 growing to 18 MW in 2026 assuming the current contract end date as reflected in wholesale power contracts remains in place with respect to four generation units at Apache Station.

However, AEPCO is currently conducting a unit study to re-examine the contract end dates of Apache Generating Station's Gas Turbine 1 and Steam Unit 1 (in Combined Cycle CC1), Gas Turbine 2 (GT2), and Gas Turbine 3 (GT3) beyond their current Class A Member contract end date. The need for future resources declines further when these units are kept in the Members' resource portfolios past the current contract end date.

Therefore, AEPCO is not currently researching the availability of sources of new power as none are currently needed. It is anticipated that the nominal shortfall in late years of the forecast will be mitigated by contract extension and nominal short-term market purchases. AEPCO will continue to monitor the Class A Member Distribution Cooperatives' load forecasts to determine the timing and necessity of any short term resource acquisitions.

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C.) A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following items of load data and analyses, which may include a reference to the last filing made under this subsection for each item for which there has been no change in forecast since the last filing:	
1. Fifteen-year forecast of system coincident peak load (megawatts) and energy consumption (megawatt-hours) by month and year, expressed separately for residential, commercial, industrial, and other customer classes, for interruptible power; for resale; and for energy losses.....	1
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1. A 15-year resource plan, providing for each year:	
a. Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment.....	9
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